

American Squab Culture

E. H. EGGLESTON

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AMERICAN SQUAB CULTURE

A PRACTICAL WORK ON SQUAB
CULTURE COVERING EVERY
PHASE OF THE RAISING, HOUS-
ING AND MARKETING OF SQUABS

BY
E. H. EGGLESTON

SECOND EDITION, REVISED
BY THE AUTHOR

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Publishers' Note

For many years there has been a great need, in fact an urgent demand, for a standard work on pigeon and squab raising, which could be used not only as a textbook by the schools and colleges but also as a manual and guide for the beginner and a reference book for the experienced breeder. This need and demand have been fully met by the publication of American Squab Culture.

The first edition was strongly endorsed by the State Agricultural Colleges of the United States, the Agricultural Department of the Canadian Government, American Library Association, U. S. Government Library War Service, American Squab Breeders Association, National Pigeon Association, American Pigeon Journal, Pigeon News, American Pigeon Keeper, National Squab Magazine, and the recognized pigeon authorities. American squab breeders eagerly welcomed the first edition. It also became very popular among the breeders in England, Australia, South America, South Africa, China, East Indies, and many other countries.

In this second edition Mr. Eggleston, the author, has entirely revised and rewritten the book thus bringing it down to date, and making it highly valuable for the great variety of serviceable information which it holds. Important material on the construction of squab houses has been added, also a large number of new illustrations. The book now thoroughly covers over a hundred different subjects and includes every known branch of the squab industry.

AMERICAN PIGEON JOURNAL COMPANY.



E. H. EGGLESTON

PREFACE

The purpose of this book is to furnish complete and ready information on all subjects pertaining to the raising of pigeons for profit and pleasure. For the benefit of those who desire to become familiar with squab breeding, for those who desire to go into the squab or pigeon business and for those who are in the business in any form or for any purpose.

The rapid growth of the squab industry in America, coupled with the fact that there is considerable to learn about the care and breeding of pigeons, has created a demand for a book which will furnish complete and specific information, and intelligent explanation of the possibilities of the squab industry.

While there are many things to be learned on the subject of keeping pigeons both for pleasure and profit, much more than one would naturally believe, the knowledge is of such a nature that it can be readily grasped, provided it is sought for in a careful and systematic manner.

To read this book through as you would a novel, or story book, will give only a slight general knowledge of the subject, but if a thorough knowledge is desired, the book must be read and studied as a school textbook.

In order to get the most out of the various subjects treated herein, the reader should have had some practical experience previously or be engaged in pigeon raising at the time the book is read.

In writing on the various topics in this book, I have deemed it necessary to explain certain facts and details more than once in order to cover closely connected subjects in a general yet

compact way. Then, for the benefit of those who desire to study each specific subject, I have treated them separately under their respective heads. By this method, each article is more complete and if read separately from other articles, the most necessary information on that and kindred subjects will be obtained.

The reader will find kindred subjects grouped in the Table of Contents under sub-heads which will furnish a ready reference to all subjects contained herein.

E. H. EGGLESTON.

Chicago, Illinois.

June 1, 1921.

TABLE OF CONTENTS

CHAPTER I

Page

WHY RAISE SQUABS?.....	13
The Squab Industry of America.....	13
Raising Squabs for Profit.....	14
Squabs Can Be Raised by Almost Anyone.....	16
Squabs Can Be Raised Almost Anywhere.....	18
When to Start in the Squab Business.....	19
The Increasing Demand for Squabs.....	20
Pigeon Habits and Characteristics.....	21

CHAPTER II

GETTING STARTED RIGHT.....	25
The Way to Start.....	25
Raising Squabs for Home Consumption.....	29
Raising Pigeons with Chickens.....	30
Raising Pigeons for Pleasure.....	33
Ornamental Squab House for Side or Front Yard.....	34

CHAPTER III

CARNEAUX	35
Origin and Development of the Carneau.....	35
The Proper Weight for Carneaux.....	37
Carneaux with Slate Colored Feathers.....	39
Yellow Carneaux	40
White Carneaux	41
Black Carneaux	45
Utility Rather Than Fancy.....	47
Solid Colored Carneaux.....	50

CHAPTER IV

	Page
OTHER BREEDS OF UTILITY PIGEONS.....	53
Homers	53
Giant Runts	55
Hungarians	60
Maltese	61
Swiss Mondaines	64
Polish Lynx	67
White Kings	68
Cross Breeds	71

CHAPTER V

FEEDS AND FEEDING	74
When and How to Feed.....	74
What to Feed	77
Composition of Pigeon Feed.....	80
Table of Food Analysis.....	85
Grains and Seeds	86
Feeding Bread to Pigeons	89
What Pigeon Milk Is.....	90
The High Cost of Feed.....	91

CHAPTER VI

GRIT, CHARCOAL, SALT AND WATER.....	92
Grit, Sand and Gravel.....	92
Charcoal	93
Oyster Shell	94
Salt	94
Sulphate of Iron	95
Drinking Water for Pigeons.....	96
Bathing	98

CHAPTER VII

CARE OF PENS, BANDING, NESTING MATERIAL.....	101
Care of Squab Plant.....	101
Care of Fly Pens.....	102
How to Band	102
Nesting Material	106

CHAPTER VIII

	Page
ENEMIES OF THE SQUAB PLANT.....	107
Lice, Mites and Other Vermin.....	107
Cats, Rats and Mice	110
Thieves and Bad Boys.....	111
Sparrows, Hawks and Owls.....	111

CHAPTER IX

MOULTING AND COLOR BREEDING	113
Moulting	113
Explanation of Feather Coloring.....	114
How to Breed Yellow, Dun or Silver Colored Pigeons.....	116
Inbreeding	119

CHAPTER X

PIGEON DISEASES AND REMEDIES.....	121
General Remarks	121
Roup and Colds	122
"Going Light"	123
Sore Eyes	124
Lumps on Wings	126
Sore Feet	126
Mud Balls	127
Simple Remedies	127
Feeding Weak or Sick Pigeons.....	130
Feeding Squabs by Hand.....	130
Helpful Remedies	132

CHAPTER XI

MATING AND SELECTION OF BREEDING STOCK.....	135
How Pigeons Mate	135
How to Tell Male from Female.....	139
The Growth of a Squab.....	141
Anatomy of the Pigeon	144
How to Keep an Equal Number of Males and Females.....	148
What to Do with Odd Cocks.....	149

	Page
Best Method to Improve the Quality of a Flock.....	149
Selection of Youngsters for Breeding Purposes.....	150

CHAPTER XII

PROPER CARE OF SQUABS AND YOUNGSTERS.....	154
Soft Shelled Eggs	154
Barren Females	154
When But One Egg Hatches, Or, When One Squab Dies.....	155
How to Tell the Period of Incubation.....	156
When Both Squabs Die Before Three Days Old.....	158
One Squab Smaller Than the Other.....	159
Old Birds That Abandon Their Eggs.....	159
Squabs That Leave the Nest Too Soon.....	150
When to Remove Squabs From Nest Room.....	161
How to Care for Squabs After They Leave the Nest	162
When Pigeons Get Old	164
Infertile Eggs	166

CHAPTER XIII

RAISING PIGEONS FOR EXHIBITION PURPOSES.....	167
Value of Raising Show Birds	167
How, When and Where to Exhibit	168
Raising and Selling Squab Breeding Stock.....	169
Raising Pigeons to a Standard.....	172

CHAPTER XIV

PREPARING SQUABS FOR MARKET	179
General Appearance of Product	179
How to Kill and Pick Squabs.....	180
Picking Squabs by Use of Paraffin.....	181
Shipping Dressed Squabs	182
Shipping Squabs to Market	183
Shipping Squabs a Long Distance.....	184
How to Ship Live Pigeons.....	185
How to Cook and Serve Squabs.....	186
Educating the Customer to Good Squabs and Prices.....	188

CHAPTER XV

	Page
CONSTRUCTION OF SQUAB HOUSES	191
Squab Houses I have Seen.....	191
Speed and Economy Vs. Old Fashioned Methods.....	200
The Kind of a Squab House to Build.....	200
How to Build a One or Many Unit Squab House.....	205
Squab Houses for Small Plants	210
Squab Houses for Large Plants.....	210
Preparing Ground for Squab Plant	212
How to Build a Squab House.....	215
Aisle-In-Front Plan	215
How to Construct Overhead Exit Leading from	
Nest Room to Fly Pen.....	217
How to Build a Fly Pen.....	218
How to Make Wire Door Frame and Gate.....	222

CHAPTER XVI

EQUIPMENT AND LOFT NECESSITIES	224
Eggleston Double Nest System	224
How to Build Eggleston Double Nests.....	227
Light and Air for Squab Houses	231
Collapsible Mating Coops	232
How to Build a Bath Trough	234
How to Supply Drinking Water for Nest Rooms in.....	
Southern or Warm Climate	237
Feed Boxes	238
How to Make a Feed Box	239
Double Deck Feed Boxes	242
How to Build Feed Hoppers.....	242
How to Make Grit Hoppers	244
The Eggleston Nest Material Rack	245

CHAPTER XVII

MANAGEMENT AND BOOKKEEPING	247
Methods of Management	247
How to Dream the Maximum Squab Yield.....	248

	Page
Bookkeeping	249
Causes of Failure	250
Do's and Don'ts for Squab Breeders.....	252

CHAPTER XVIII

FANCY PIGEONS	255
Characteristics of Different Varieties	255
Raising Fancy Pigeons	256
Mating Fancy Pigeons	257
Developing Fancy Pigeons	257

CHAPTER XIX

PIGEONS THAT HAVE FREE RANGE.....	259
Care of Common Pigeons	259
How and When to Feed and Water Pigeons That Fly Out.....	260
How to Construct Nesting Places for Pigeons That Fly Out.....	261
Outdoor House for Pigeons That Fly at Liberty.....	265
How to Keep Pigeons That Fly Out From Leaving Home.....	268
Roosting Places For Young Pigeons That Fly Out.....	269

CHAPTER XX

HOW TO SUCCEED	271
Learn Your Business	271
Start Right	272
Close Attention	272
Details Are Important	272
Make Work Easy	273
Love Your Work	273
INDEX	275

AMERICAN SQUAB CULTURE

CHAPTER I

WHY RAISE SQUABS?

THE SQUAB INDUSTRY OF AMERICA

From time immemorial pigeons have been kept in a domesticated state during which time many of them have served the purpose of furnishing the tables of mankind with wholesome and nutritious food but, it has been left for American ingenuity to put the rearing of squabs in large numbers upon a commercial basis.

Different persons have claimed the honor of this achievement and your author will not attempt to say who is the real founder of the industry. Squab raising is only in its infancy and as the requirements of meat production in America is an ever present one, this work is written in the hope that some new light may be shed upon this subject.

Everybody engaged in pigeon raising, whether they keep a pair of common pigeons in the back yard, or breed pigeons for pleasure or for racing, or own a squab plant, large or small, are more or less interested and come under the head of pigeon raisers or squab breeders.

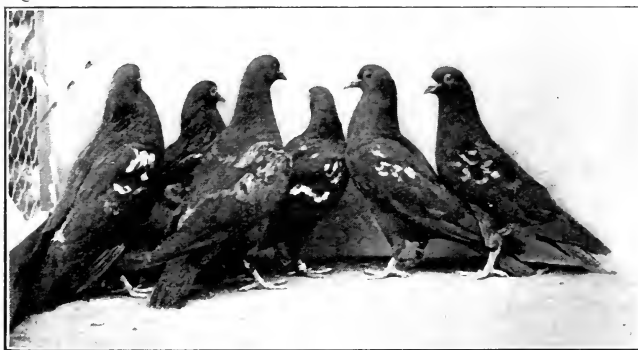
In dealing with this question, I shall try to treat it along the line of economy in time and expense, and to make it as instructive as possible.

While the various subjects of interest to squab breeders will be my chief topic, pigeons are pigeons, and consequently there are many methods which apply equally to the fancier and the squab breeder, so I will give these common points due consideration as I go along.

RAISING SQUABS FOR PROFIT

Is there money in squabs? This is usually the first question that flashes across our mind when we first learn of the industry, and again the question is first asked when we contemplate entering the business. Even those actually engaged in a small or irregular way often ask of themselves: Is there money in squabs?

For the benefit of all interested, I will give a synopsis of the possibilities of the squab business, and some facts and figures which should convince every "doubting Thomas" that money can be made raising squabs. Almost any industry can be



GROUP OF BELGIAN CARNEAUX

figured out with pencil and a piece of paper to meet the requirements of a skeptical mind, and for that reason I will not undertake to figure the profits of the business from an assumed basis. I will give the cost of breeders; the cost of equipment; how much it takes to feed and care for squab producers; the number of squabs an average pair will produce annually under normal conditions; and the average market value of squabs in the various sections of the United States. With these facts one can make his own calculations, taking into consideration his locality, market facilities, the number of birds he expects to handle, and the amount of time he expects to devote to the business. While there are thousands of people throughout the

United States making money raising squabs, there are many who are not succeeding, and some who have no knowledge of whether they are making or losing money.

Belgian Carneaux are conceded to be good, average all-around squab producers. Therefore, I will take this breed as a standard from which to figure profit and loss.

The first item of expense to be reckoned in squab raising is ground space. If a squab plant is built in the country, naturally the ground space is worth but little. If it is built on the back end of a lot, it is also a small item, but if built on a lot purchased for that purpose, a fair interest on the value of the portion of the lot used must be added annually to expense.

Good Carneaux from a reliable breeder can be purchased for about \$5 a pair. House room, fly pen, nest boxes and other equipment, suitable for the average American climate, will cost for lumber and labor about \$1.70 a pair, provided a house is planned sufficient for as many as 160 pairs; less than that number the building would cost more, proportionately up to \$3.00 a pair. This is based upon the loft, fly pen, and nest box system described in this book, and it is firmly believed that the houses and buildings described herein will be as cheap as any. Forty pairs of squab breeders will do well in one room, 8 by 10, feet, with fly pen 8 by 12 feet, making a total space of 8 by 26 feet, counting a 4-foot aisle. It will cost to feed a pair of Carneaux for one year, including their squabs, until killing age, \$1.80 or less.

One man can, with good equipment and convenient arrangements care for 2,000 pairs of birds, with the services of one extra man or two extra boys or girls to help pick on killing days, so the proportionate annual expense of caring for squab breeders will be about 25 cents per pair, in excess of feed and housing.

The breeding life of a pair of Carneaux is easily six years, so one-sixth of the purchase price of the breeders should be charged off annually, and it is also a good plan to charge off 10% of the cost price of buildings and equipment annually, although buildings used for squab purposes will last a long time if painted regularly and properly cared for.

Taking all the above into consideration, and allowing an extra percentage for waste and other leakages, the expense will run less than \$2.50 a year per pair. With ordinary care and treat-

ment, a pair of Carneau will easily average 16 squabs a year, which will bring on any market, the year around, \$5.00 a dozen.

An economical person will be enabled to reduce the above expense. With careful and systematic attention, a pair can be made to produce a larger number annually; with a little good judgment and effort used in the selling end, squabs can be sold for more than \$5.00 a dozen. These are facts that have been demonstrated over and over again, by actual experience and by tests, and can be depended upon to be correct. With this information it will be an easy matter for one to calculate how much he can count on making from each pair of birds, provided he has good breeders, properly housed and cared for, and a market.

If squabs are sold to a private trade, hotels, clubs, or shipped to some commission merchant in New York or the large cities, they will bring more than \$5.00 a dozen, but I have used this figure as a minimum amount that good squabs will bring in almost any market.

Does it pay to raise squabs, can be answered in fewer words than the above. There is an unlimited demand for squabs at a fair price in America. Good squab breeders can be purchased at a fair price. The right kind of breeders are very prolific, healthy and easy to handle, and the expense of feed, care and interest on investment for any number of squab breeders will not equal the amount received from the sale of their squabs. This is being proved by the hundreds of breeders daily, all over the country, but as the price of feed, method of handling and price of squabs vary, there cannot be a fixed percentage of profit determined upon.

SQUABS CAN BE RAISED BY ALMOST ANYONE

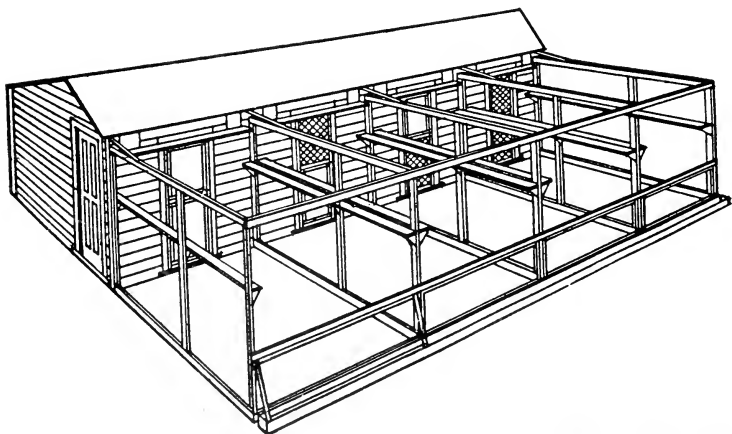
Lawyers, bankers, doctors, merchants, farmers, laboring men, in fact men of all walks of life, and women and children can raise squabs in large or small quantities if the proper interest is taken.

Contrary to the average opinion, squabs can be raised profitably in the towns and cities of America, as well as in the villages and country, but not on as large a scale unless a place is provided in the suburbs. A small backyard is sufficient space to accommodate quite a number of squab breeders.

It only takes a ground space of 8x24 feet to comfortably house and care for 30 to 40 pairs of squab breeders. This much space

can easily be squeezed out of almost any city lot without interfering with the ordinary use of the lot. Any housewife or a boy of the family can, with an hour or two of time each day, devoted to the industry, care for 40 to 80 pairs of breeders, without neglecting other duties and, in fact, most people will be greatly benefited by the outdoor exercise and diversity that would come through such a pursuit.

There is always a local market that can be supplied with a few squabs, including hotels, restaurants, hospitals, or a private trade which will more than consume the squab output of a small plant without much effort on the part of the owner. At



FOUR UNIT SQUAB HOUSE AND FLY PEN FRAME COMPLETE
READY FOR COVERING WITH WIRE

the present high cost of all meats, it would be profitable for almost any family to raise as many squabs as they could consume; in all cases in addition thereto, enough squabs can be sold to more than buy the feed and defray other expenses, so that it is easily possible for a family to reduce their meat bill materially by keeping a few squabs in their own back yard. Almost any mechanic or laborer, clerk, business or professional man, can spare enough time daily to personally take care of 50 to 100 pairs of squab breeders, which will not only prove profitable, but furnish recreation as well.

In the winter, when the days are short, a trustworthy neighbor boy can generally be found who can be employed for a small sum to feed and water the breeders provided the owner leaves home before or after dark, and a neighbor boy can be secured for a nominal sum to come once or twice a week the year round for the purpose of cleaning, whitewashing or doing similar work.

Squab raising or caring for a squab plant is really a pleasant occupation, especially for those who like to "keep busy." There is always something to do and the work is not unpleasant.

SQUABS CAN BE RAISED ALMOST ANYWHERE

Whether one lives in the north, south, east or west—in a city, a village or in the country, squabs can be raised profitably with the proper care and attention.

There are no offensive odors from a squab plant, and the birds do not make enough noise to bother the nearest neighbors. Therefore, there can be no serious objection on the part of the neighbors to squabs being raised near them. It is true that pigeons do a lot of cooing, and while it sounds loud at close range, the noise does not carry very far, and cannot be heard to any extent, 50 feet from a squab plant. A large plant can be easily maintained in the suburbs in any town or city about as profitably as in the country.

There are some advantages gained by having a squab plant in the country, that is, on a farm, but there are other advantages in a town or city squab plant, and in some respects one offsets the other. As an example, ground space in the country is no item. Some special feeds can be raised to an advantage and other foods can often be purchased in the country cheaper than in town, but on the other hand, the conveniences of city water, the advantage of a close market and shipping facilities will offset many of the farm advantages and conveniences.

I have often heard people make the remark that if they lived in the country, where they could raise their own feed, they would go into the squab business extensively. They did not stop to figure that there was very little advantage to be gained by such a method, for the reason that all kinds of grain and pigeon feed can be sold or purchased at the market price, and if one raises his own feed it has only a market value. That

is to say, if one raises squabs and grain, the amount of grain that he feeds his birds should be charged up against his birds, and credited to grain, for he could have sold his grain on the market, and taken the same money and bought grain from a neighbor with which to feed his squabs. The two businesses, therefore, are separate industries. Of course, if grain is used on a farm where it is raised, the expense of delivery is eliminated, and it is possible to raise a particular kind especially for pigeons to an advantage over purchasing it, on account of freight charges and middleman's profit.

One of the greatest assets of a squab plant located on a farm is the fact that a farmer could in many cases use an extra hand if he was raising squabs as a part of his business; while without the squab plant he would not have sufficient work to justify an extra hand, and the man with just a squab plant would also not have sufficient work to justify an extra hand. As an example, chickens require careful attention in the morning and night, especially during the hatching and brooding season. Pigeons can be cared for any time during the day, so a chicken raiser could breed squabs to an advantage.

Probably the best way for one to calculate the most suitable place to raise squabs is to reckon from his present position, and then change his location and vocation the smallest degree possible to enable him to embark in the squab industry on a scale his experience and convenience will permit, and then change his location and vocation as the growth of the squab industry demanded.

WHEN TO START IN THE SQUAB BUSINESS

Josh Billings wrote that "the time to set a hen was when the hen was ready." Pigeons breed the year round. There is nothing therefore to be gained in waiting for a certain time of the year to start. It seems to be natural for every person to want to undertake some outdoor work in the spring of the year. All nature seems to be awake at that period, and the human body and mind is no exception, and for that reason more people start raising squabs in the spring than any other season. I know no other reason for so doing, and there is no advantage to be gained by starting one month over another. Squabs

bring more money in the winter than during the summer months, so if it is going to be a question of raising birds for market, the fall would be as good a time as any, but if the start is made at any other time, the advantages of the winter market would be enjoyed just the same. I would say therefore that the time to enter the squab business is NOW, and the place, with a few exceptions, is your present location.

THE INCREASING DEMAND FOR SQUABS

More and more the general public is learning to appreciate the true value of squabs as a food.



FANCY DRESSED SQUABS READY FOR MARKET

The rapid decrease of the supply of meat in the United States, coupled with the rapid increase of the price of meat, the former being the principal cause of the latter, is a problem that will have to be met sooner or later, or the people of America will, like Europeans, be forced to go without meat except on Sunday or rare occasions.

Our population is increasing about two million a year and the annual decrease in beef cattle, caused by the settling of the

western grazing land, goes into the millions. The game in America once so plentiful is about extinct, and as time goes on these conditions will increase more rapidly and will be more noticeable each year.

Viewing the meat question and squab raising from a broader standpoint, the time is rapidly coming when large squab plants are going to be found in every section of this country, as the public learn more of the value of squab meat, its delicious flavor and its cost when comparing its nutritiousness with that of other meats, squab meat will become more and more in demand, while the squab industry has made rapid strides in America in the past few years and grown to a volume beyond the comprehension of its most enthusiastic supporters. Even during war times when the price of grain was high the squab industry continued to grow. It is in fact only in its infancy and in a few years people will wonder why squabs were not eaten in larger numbers before. Pound for pound, there are few meats, if any, that are more palatable, nutritious and helpful to the human system than squab meat.

The leading physicians of the country are prescribing and recommending squab meat. It is strengthening and easy to digest. The old birds eat nothing but grain, the meat is rich with carbohydrates and protein. The rapid growth of a squab from an egg to a pound of meat in four weeks makes its meat tender and void of the tough indigestible cells found in other meats. The taste for squabs is not a developed one, once eaten always liked.

PIGEON HABITS AND CHARACTERISTICS

There are over 200 different varieties of pigeons, ranging in size from one-half to two pounds each.

There are four general classes of pigeons: Racing, fancy, utility and common.

Pigeons mate or pair off one female to each male.

Pigeons mate when about five to eight months old and stay mated for life unless separated.

Any male pigeon will mate with any female pigeon if shut up together or put by themselves.

Pigeons lay two eggs and then go to setting; the second egg being laid the second day after the first is laid.

It takes seventeen days' incubation for pigeon's eggs to hatch.

Pigeons build their own nests, like birds, carrying the straws to the nest one by one, and placing them in order with their bills.

The male pigeon carries the nesting material to the female and she sets on the nest and arranges the straws in place.

The male, as well as the female pigeon, sets on the eggs. The male relieves the female on the nest from about 10 to 4 each day, and the female sets on the eggs the balance of the time.



PAIR OF SQUAB BREEDING HOMERS

Pigeons continue to set on the nest for several days after the young hatch out, to keep them from chilling. This is necessary even in warm weather.

Most pigeons lay and raise young the year around, laying again each time when their young are about two and one-half weeks old.

Pigeons feed their young by first eating grain and drinking water, then they fly to the nest and by a pumping or belching motion the feed is transferred to the crop of the young.

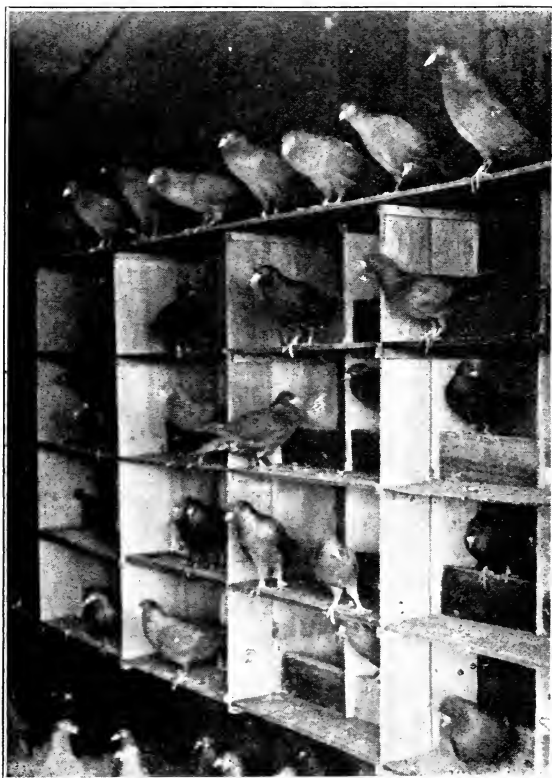
Until a squab is several days old, it is too young to swallow regular food, so the old birds feed them pigeon milk, a peculiar mixture that accumulates in the crops of the old birds after they have set on eggs 16 days.

Pigeon milk develops in the crop of the male bird as well as the female, although he serves less hours on the nest.

Squabs (young pigeons) do not leave the nest until they can fly, which is from four to five weeks after hatching, when they are fully feathered and about as large as their parents.

Squabs cannot eat, and do not learn to feed themselves until after they leave the nest.

Pigeons do not roost on perches or anything round. Their feet are flat and they prefer a flat surface to sit or stand on.



CARNEAUX AT NIGHT

Pigeons do not eat meat, they live on grain principally, but eat a little grass, Swiss chard, clover or lettuce leaves in the spring and summer.

Pigeons do not drink like a chicken, but more like a horse. They require a great deal of clean, fresh water.

Pigeons do not scratch in the dirt like chickens, but depend on what they can find to eat on top of the ground in plain sight.

Pigeons do not dust themselves as chickens do, but take a water bath instead, like canary birds.

Pigeons shed their baby feathers when about three months old, then, like all other fowls, molt in the fall of each year, when they get an entire new coat of feathers.

Pigeons live to be 12 or 15 years old or older, but are not active producers of squabs after 8 or 10 years of age. In fact, they slow up after 6 years of age.

CHAPTER II

GETTING STARTED RIGHT

THE WAY TO START

Whether one starts in the squab business on a large or small scale depends upon the capital he has to invest, the conveniences at hand and the time he can devote to it.

There are two ways to start in the pigeon business. With a few pairs in a back yard or an immediate start with several hundred pairs, with substantial houses and ground room to run a good sized plant. If you go into the business with a few pairs, you should, as near as practical, follow the same methods, adopt the same equipment, and pay as much attention proportionately as you would if you had a large plant with several thousand birds. In this way you will establish yourself so that when your plant grows you will know just how to expand and successfully operate it.

In outlining, therefore, the way to start and the essential things to do, I will vary only where it will be necessary to explain the difference between the buildings and ground requirements for a large plant and a small one. If you are going to start with a few pairs you should first prepare a suitable place for your birds. Carefully survey the premises to determine the most practical place available, always remembering that there is a right and a wrong as well as a best way to do everything, and that this applies to the squab business whether conducted on a large or a small scale.

A section of almost any building will do for a nest room. A chicken house, barn loft, a garage or an attic will do to start with. A south or east exposure is the best. The place should be thoroughly cleaned, made rat and cat proof. A floor space 4x6 feet is about as small as can be used with any degree of satisfaction, and if convenient a larger space should be provided.

An 8x10 room, however, is about as large as can be used to advantage, as a larger room than that will tend toward making the birds wild, and especially so if the ceiling is high enough to permit the birds to fly over your head. The space allotted off for the birds should be enclosed in solid walls, unless by so doing it will make it too hot or dark. A wire partition in part or in whole will do, but the better plan is to put a small window in for light and air. If a wire partition is used, 1-inch mesh chicken wire will keep rats out, where a 2-inch mesh will not. You may figure that any old box will do for nests, but you might just as well start right and the way to do that is to put in a few double nests and do everything else properly.

More people fail in the squab business because they give it too little thought and attention than from all other causes combined. You should have a double nest for each pair to start with and a few extra nests will do no harm. Next you should make a feed and grit box and a nesting material rack. (See article on these subjects in this book.) Drinking water and a place to bathe should also be provided. (See article on same.)

This will complete the inside of the house, after which you should construct a fly pen. A small wire enclosure a few feet square with wire overhead as well as on the sides will do for the birds to air and sun themselves. The fly pen need not be built on the ground; if not, the bottom of the pen should be covered with sand or fine gravel. (See article "Care of Fly Pen.") If this is not practicable, a good sized, low, flat box should be provided and kept full of fresh gravel. This box can be kept in the nest room or fly pen. One or more running boards should be put up so the birds will have a place to light and sit while in fly pen. The proper construction of fly pens is explained elsewhere herein.

In the meantime you should begin to look around for some birds. The kind to buy depends somewhat on the amount of money you have for that purpose, but you should bear in mind that if you start with inferior birds you will raise that kind, and the little extra paid for good birds over poor ones will come back many times over in both number of birds and quality. For full information read article on squab producing breeds. About the surest way is to pay a fair price to some reliable breeder. It does not make much difference if the birds you get are not

mated, just so they are old enough to mate and you get an equal number of males and females, as they will mate up and go to work promptly if you have favorable conditions. If you wish to start on a large scale, you should first find a suitable place for a squab plant.

If you conclude to enter the squab business on a large scale from the start, I would suggest that you proceed about as follows: First decide on a location. Of course the distance from the market has something to do with the profits of the business, but as freight rates on feed is as high as express rates on squabs, in proportion to the amount consumed and sold, it is about as well to be near the supply of feed as the squab market. As a rule, the best section to enter the business is where you happen to be located.

For each 40 pairs of squab breeders it requires a ground space 8 feet wide and 26 feet long, 208 square feet, or about $2\frac{1}{2}$ square feet to the bird. This allows for the Eggleston regulation squab house, making each nest room 8x10 feet square, and a 4x8 feet aisle in front, and an 8x12 feet fly pen. A 3-foot aisle and an 8x10 foot fly pen will do, if you are short of ground space.

Each 10-unit plant will require a ground space 26x80, which will house and care for 400 pairs of birds. To this should be added enough space for a feed and killing house.

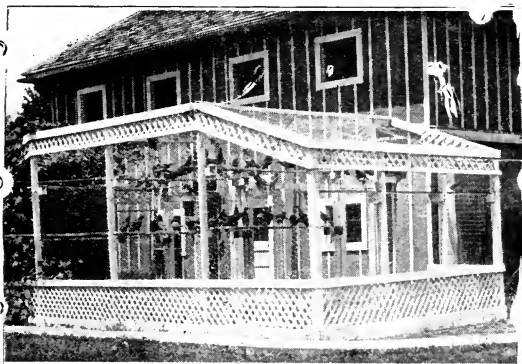
With a small plant one can store feed in the aisle or passageway, or can even provide a small bin in the aisle for feed purposes, but with a large plant it is necessary to have a feed room, and also a killing room, either separate or together. These rooms can be built in connection with the squab house, or a separate building can be constructed for that purpose.

I think the best plan is to build the feed room in connection with the squab house, so that it will not be necessary to go out doors in order to carry feed to the birds. A good plan is to leave one or two units vacant in the center of a squab house for this purpose, with a door entering from the rear, and doors leading into the aisle or passageway to the birds on either side.

Regular grain bins should be built around the walls of the feed room, and they should be mice and rat proof. A large convenient bin should be arranged for mixing the grain. The mixing place should be large enough to permit the use of a hoe or a scoop shovel for stirring or mixing purposes.

For the general plan and how to construct squab houses and arrange a squab plant complete, see article in this book on The Construction of Squab Houses and Fly Pens, Nest Boxes, Mating Coops, Feed Boxes, Grit Boxes, Tobacco Stem Crates, Bathing Troughs and Water System, which articles are accompanied by illustrative drawings that can be followed by a carpenter.

In the meantime, you should arrange for the purchase of your breeding stock. There are a number of reliable breeders throughout the country that can furnish good birds at a fair



A FANCY FLY PEN WITH SQUAB HOUSE IN CORNER OF BARN

The above picture shows a fly pen built on to a barn in the fashionable section of a small town. The lattice work makes it unnecessary to have wire for that portion of the section. Any ordinary fly pen can be constructed along the same lines. If painted and trimmed neatly they look very ornamental.

price. I would advise against starting in with anything but first class breeders, regardless of the number of birds that you would start with. I would also advise that you determine on the best breed in advance and stick to that breed, and not be trying out several different kinds, until you are sure that some other breed is better than the one that you have, which would be time enough to change.

It will not be necessary for you to buy enough pairs to fill your plant, for you can allow young birds to accumulate until you have a full supply of breeders. You will not save as much, however, on this method as you might anticipate, for the reason that if you start to selling squabs immediately you can make enough money from the sale of squabs in six months' time to buy additional breeding stock, and the birds that you raise will not go to work much before eight or ten months depending upon the time of the year they are hatched. So from a financial standpoint, it is practically just as well, or it might be better to buy all your breeders outright, and not depend upon raising breeding stock, as this is a branch of the business that requires special knowledge to handle successfully.

All birds that you might raise would not be good breeders. You would undoubtedly have more males than females, and the expense of feeding the youngsters from the time they left the nest until they mate and go to work, added to the extra expense of care, and the loss due to an excess of males, will be about as much as new stock would cost, taking in consideration what you could have received for the birds had you sold them as squabs.

Some of the largest squab breeders in the country buy enough breeding stock annually to replace the birds that have outlived their usefulness, rather than to go to the trouble and expense of raising their own breeding stock. Such men figure that they are in the squab business solely and make the most out of that branch of the industry.

RAISING SQUABS FOR HOME CONSUMPTION

More and more each year, as people become more familiar with raising squabs and the value of squab meat becomes better known, small squab plants are being established by many who do not enter the business from the money making standpoint, but merely for supplying squabs for their own use.

There are many people who are situated so they can not raise chickens and so have never given thought to the idea that they might have a few pigeons, as they require no yard or range as chickens do. They are not offensive or objectionable, and a few pairs can be kept by almost anyone living in a city, even in a flat where the ground space and back yard is limited.

A squab dinner is considered a luxury, yet it can be had once or twice a week at a small weekly expense, and the work of caring for them be made so interesting that it is a recreation and a pleasure.

The average standard bred squab will make a meal for a grown person. A pair of standard squab producers will produce two squabs every six weeks. Six pairs, therefore, will average two squabs every week. By the size of your family and how frequently you desire them, you can determine the number of pairs it will be necessary for you to keep in order to supply your demand.

Those who are fortunate enough to live in small towns or in the country, where they have ample room for such things, can easily keep a few producing pigeons, raise enough squabs for their own use and supply a few neighbors, if they so desire, and use the proceeds to pay their feed bills and take care of other expenses.

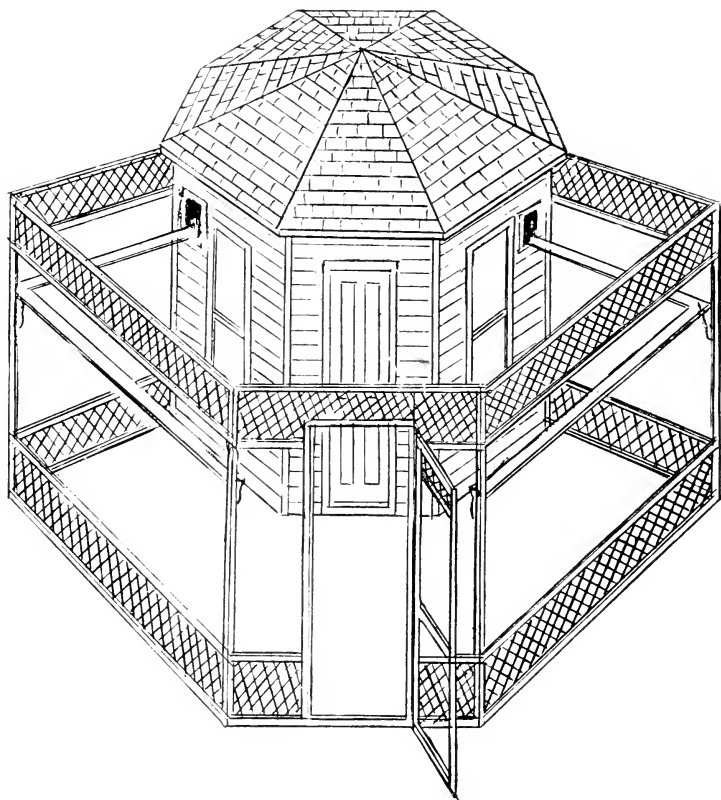
Lawyers, merchants, bankers, clerks, doctors and, in fact, anyone whose time is occupied indoors, can secure a lot of recreation in caring for a few pigeons at home and at the same time make it profitable and secure a food product that cannot well be secured otherwise.

An elaborate or expensive place is not necessary for a small plant. The corner of a barn or portion of a chicken house, or even a space in a garage, can be utilized for this purpose. If a person desires, he can build a fancy and artistic place for pigeons in the side yard.

RAISING PIGEONS WITH CHICKENS

Pigeons can be raised in conjunction with chickens with little or no disadvantage to either, provided nests and other necessary arrangements are properly taken care of.

Chickens are so much larger and stronger and faster eaters that the two cannot be fed together, for if they do the pigeons will not get all that is coming to them in the way of feed. Therefore, if they are kept in the same enclosure, the feed for the pigeons will have to be provided in a place that the chickens cannot get to. This can be arranged by either having the feed on a platform up out of the range of the chickens or in a small



ORNAMENTAL SQUAB HOUSE AND FLY PEN

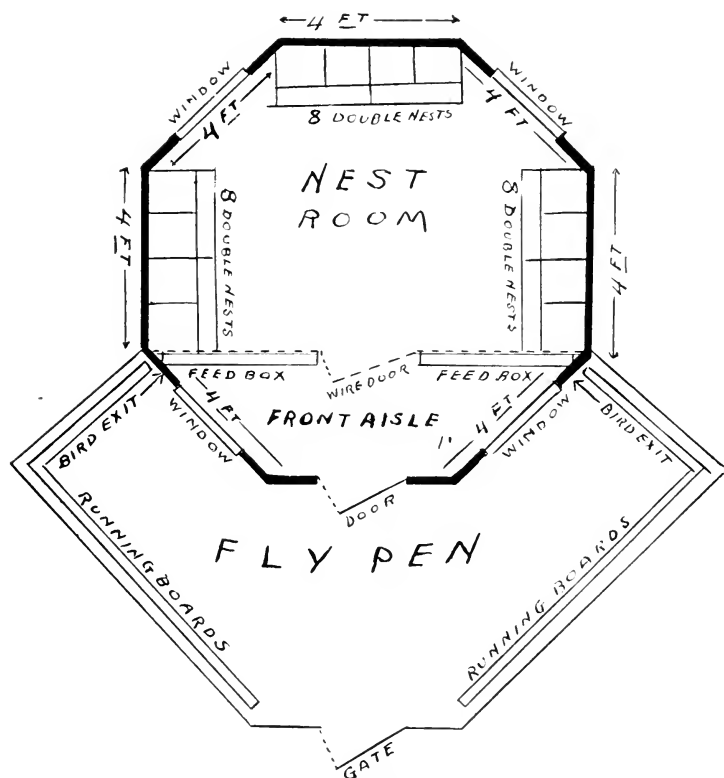
A fly pen for a side yard pigeon house can be extended clear around the house if desired but if so constructed there should be a division partition in the center of the back to prevent birds from flying around if one should desire to catch them.

wire or slat enclosure with the entrance large enough only to admit pigeons.

The best plan is to have the nesting rooms separate and the fly pens and run-way together. Then have the entrance to the pigeons' nest room so small or high up that the chickens cannot

get to it. Chickens can with this arrangement be fed so that they can scratch for their feed and pigeons can be fed in their nest room, which is the best place to feed on account of keeping the feed where it will not be exposed to the weather, and where young birds will have access to it.

The nesting for pigeons kept in connection with chickens should be so arranged that the hens cannot get into the pigeons' nests, for if they do they will trample and break the eggs and do other damage.



GROUND FLOOR PLAN FOR ORNAMENTAL SQUAB HOUSE

An old hen with little chickens is especially apt to fight a pigeon if she is not used to them being around. The old hen seemingly takes the pigeon to be a hawk and will pounce on it with murder in her heart, often catching and killing or crippling the pigeon without its even having an opportunity to fly out of the way.



INTERIOR VIEW OF OCTAGON SHAPED SQUAB HOUSE

Note aisle in front feed boxes and double nest construction the same in this small house as in the regulation Eggleston plan.

RAISING PIGEONS FOR PLEASURE

Aside from the money to be made from breeding squabs, the employment it will furnish and the outdoor recreation, there is so much about pigeons and their habits, men and women, also boys and girls, can become so intensely interested in pigeons and the work of breeding them that it will become a pleasure. This is especially true when there is a fixed purpose to accomplish along the line of breeding; the Carneaux, for instance, will re-

quire some study according to the adopted standard, and it can only be made more perfect by careful mating and selection, together with the skill which comes from a scientific study of the birds.

You will note by experience that certain colors and types, including shape of head, neck, eyes, etc., together with a certain carriage, is necessary. Carneaux collectively have all these qualities, and to get the largest number of them in one bird is a very interesting work and furnishes a certain amount of pleasure and satisfaction.

ORNAMENTAL SQUAB HOUSE FOR SIDE OR FRONT YARD

An ornamental squab house can be constructed and placed in a side yard or front yard in a way that will be very attractive and ornamental to the premises.

There are several ways that such houses can be built, but about the most practical and easiest to construct is as follows: Made in octagon shape, five or six feet across, six feet high to the eaves, with a pointed roof and wide bungalow eaves, surrounded with a wide octagon shape fly pen, a part of which can be made of lattice work.

The fly pen should be 12 or 14 feet across, which will leave a space of three or four feet around the building. The fly pen can almost entirely encircle the building or run on three sides only.

The door of the building can have a sash in it which will furnish sufficient light or it is a good idea to have two or three small windows of ornamental design.

The inside of the house can be equipped with four sections of double nests and will accommodate anywhere from 12 to 30 pairs of birds.

Such a house can be painted and trimmed to correspond with the other buildings on the premises. Dark bungalow green with a red roof and trimmed with white makes an attractive color combination.

CHAPTER III

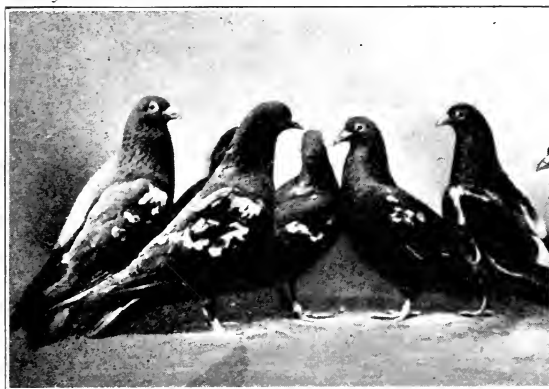
CARNEAUX

ORIGIN AND DEVELOPMENT OF THE CARNEAU

Nobody seems to know the origin of the Carneau. By some it is claimed to be a made or created breed, others maintain that it is a separate and distinct breed that has been in existence for centuries. Until the last fifteen or twenty years, however, the Carneau was little known in America. The first birds of this breed came from Belgium and France, and some claim that there are two branches of the breed, namely: the Belgian Carneau and the French Carneau, but I am strongly of the opinion that a Carneau is a Carneau, whether it comes from France or Belgium, at least birds coming from both of these countries appear to be just about the same. Neither of them, however, are developed to the present American standard, which has been greatly improved in the last decade, both from the standpoint of beauty in color and type, and its squab producing ability. The American Carneau is more uniform in size and color, and is a better squab producer. I attribute this to the fact that we have specialized on these qualities here in America, and by the process of selection and elimination have gradually built our birds to a higher standard.

The Carneau in America is popular, because it possesses rare quality in the production of extra large, fat, plump, well flavored, white meated squabs. Coupled with this is its rare beauty and color, shape and size, its domestic and general disposition. The Carneau will do well in any climate, from frigid Alaska to the torrid Panama. It will adapt itself to almost any condition, and immediately start on its perpetual work of squab raising, which seems to be its only aim in life. The natural color of a Carneau is rich dark red with white feathers irregularly scattered over its body, or a rich buff or golden yellow with the same assortment of irregular white feathers, rare exceptions, all red or all yellow. The desire of some breeders to

eliminate the white feathers in a Carneau and produce the solid colors has resulted in developing off colored birds; therefore, we frequently find Carneaux with more or less slate or bluish colored feathers on them, this off color generally appearing on the bird's rump or under its tail. Sometimes, however, the entire feathers will show more or less of a muddy or bluish cast. There is little or no advantage to be derived from the color scheme of the Carneau. Its main points of quality being its size, which should not be too large or too small, its type and squab producing qualities.



SPLASHED CARNEAUX

Those that desire to breed Carneaux for utility and squab producing purposes, strive to maintain the original colors of red and white or yellow and white, and leave the production of the all red or all yellow to those who desire to raise the Carneau for fancy rather than breeding purposes. Carneaux properly handled become very gentle and tame; they will seldom fly off the nest when the nest room is entered and, as a rule, you can put your hand under the bird without causing them to leave the nest. They are good close, attentive setters, splendid mothers, and will care for and feed extra squabs that are put in their nests along with their young.

By a little management and care the nest can be changed about from one part of the room to another without causing them to leave it, if such a thing is desired. They can be separated from their mates and re-mated with other birds quickly, and will immediately go to work. They will mate and go to work at an early age and will produce squabs the year round, including the molting season, if they receive the proper care and food at that time.

THE PROPER WEIGHT FOR CARNEAUX

It is natural that people should want the largest specimens when selecting stock from which to raise squabs for the market. Therefore, we cannot criticize them for having natural ideas even though they might be wrong which is the case as applied to Carneau. The largest Carneau are not the fastest breeders, and do not produce the largest squabs. There is a limit to the size of a pigeon and overgrown or undersized pigeons, like everything else, are not fast breeders and will not reproduce themselves in size. This is especially true with Carneau. The well shaped, full breasted, blocky, medium-sized Carneau is by far the best squab producer.

The larger and over sized Carneau breeders will have a tendency to produce large "all bone and feather" squabs and few in number.

Mr. Jas. P. Kinnard covered the question of the proper weight of Carneau when he wrote:

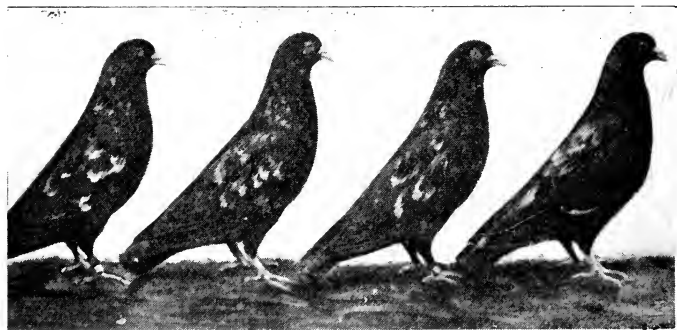
"While Carneau are larger than Homers, they are not an extra large breed. A pair of typical Carneau will, however, raise more pounds of squabs in a given time than any other breed.

The French standard of perfection, adopted in 1891, shows the ideal Carneau in France at that time to vary in weight from 500 to 525 grammes (16 1-4 to 16 5-6 ounces) for cocks, and 425 to 450 grammes (14 2-5 to 15 ounces) for hens. By a careful system of selection, mating and breeding these weights have been considerably increased in America since that time, and the type consequently enlarged.

The weights preferred by the standard of perfection adopted by the International Carneau Club of America are as follows:

Old cocks 24 ounces; young cocks 23 ounces; old hens 23 ounces; young hens 22 ounces.. However, nearly all the leading American breeders agree that the medium sized Carneaux are the best, most typical and prolific of the breed.

The Carneau is a bird of medium weight, and those of medium weight are more prolific than those of extra large size. Many breeders are, however, spoiling their Carneaux trying to get big birds. Some have them crossed with Runts and Mondaines, because of the seeming present demand for extra large birds, which is often the result of ignorance as to what size Carneau it takes to produce twelve-pound squabs. This is all wrong, for it is useless to produce a giant pigeon to the detriment of its



RED AND WHITE SPLASHED CARNEAUX

breeding qualities. This demand for extra large pigeons grew out of the misunderstanding of the constant urging of the production of larger squabs, for until recent years the squab market was being supplied with six, and eight-pound squabs.

A pair of Carneaux that weigh thirty-two to forty ounces will produce squabs averaging twelve pounds to the dozen, while those weighing forty-two to forty-six ounces to the pair will produce squabs averaging fourteen pounds to the dozen, and even those weighing thirty-two to thirty-eight ounces to the pair will produce squabs averaging ten pounds to the dozen; the weight of the squabs, however, depending on the feeding quality of the parents, as well as their size and the quality and variety of the feed.

It is generally conceded by the leading Carneau breeders of America that the eighteen to twenty-two ounce Carneau is the best, most typical and most productive of the breed.

CARNEAUX WITH SLATE COLORED FEATHERS

The common objection to slate or blue feathers on the Carneau is no doubt due to the fact that most Carneau crosses have such feathers and while the presence of slate or blue feathers on a bird does not prove that it is not a full-blooded Carneau, this test acts as a safeguard to the inexperienced. The natural color of a Carneau is red and white. Rare specimens are red, and sometimes yellow. Sometimes they have slate or blue on their breasts, rumps or on their tails. This slate is generally due, however, to the effort to breed extra dark, solid red Carneaux. When there is no pigment in the feather coloring the feathers are white, and with too much pigment they are darker than red and take on a bluish cast, commonly called slate.

Another objection to slate feathers is the tendency toward darker meated squabs. The presence of considerable slate in the feathers always means dark meated squabs.

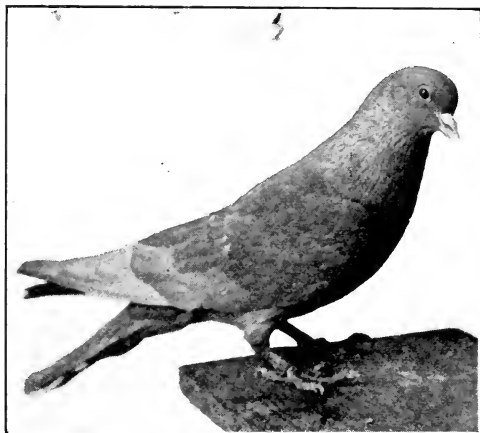
If one would discard all Carneaux with slate feathers and retain those without slate feathers they would be reasonably sure of having the pure bred stock, but this is really not the best test. A Carneau has other marks of distinction besides its color which are just as much or more important. There are pigeons of the Carneau shade of red to be found among lots of other varieties, and if the color test only applied one might have red birds with no Carneau blood in them and think they were Carneaux.

For those who are not familiar with the Carneau, I will furnish a few of the most important and pronounced characteristics of the bird. The average hen will weigh from 18 to 22 ounces, and the cock from 19 to 23 ounces. If fat they will run a little more and if poor a little less than that. Both sexes are of blocky type—the cock having a little longer body and the hen a little deeper keel and fuller breast with a smaller throat and head. The beak is light in color, of medium size with a medium V-shaped wattle; the eye rather large and bright set in the middle of the head; the top of the head round and high in front,

coming almost straight down to the beak, forming an obtuse angle between the forehead and the beak or bill. There are other marks of special note but these mentioned are the most prominent.

YELLOW CARNEAUX

As previously stated, the natural color of a Carneau pigeon is red with white spots irregularly scattered over the body, with now and then a solid red bird and rare exceptions a yellow and



YELLOW CARNEAU

white or solid yellow. There is but very little difference in reality in the color of a red Carneau and a yellow Carneau. (This is true of all breeds of pigeons.) The yellow is apparently just a little bit more negative in coloring matter, which by the way is more frequent with females than with males; that is to say, with all red breeds of pigeons now and then there is apt to appear a yellow female and so far as that goes, this same color characteristic appears in birds of any solid color, as the female will on exceptional occasions show lighter in color than males of the same variety. Dun females, for instance, will sometimes appear among black feathered birds.

It is argued by some that it was necessary to cross with the yellow females of this breed, yellow males of some other breed, such as the yellow Homer, and then mate the offspring, which will be a yellow bird and one-half Carneau, with a female yellow Carneau, then remating the yellow male offspring from this combination again with a full blood yellow female and so on until the Homer blood was eliminated.

If this was true, where does the yellow male Homer come from, as the same rule applies to yellow Homers as applies to Carneau, viz: that the yellow birds were originally females? See article on "How to Breed Yellow, Dun and Silver Colored Pigeons." The yellow Carneau exists now as a special variety of which there are both male and female and reproduce their kind without throwing any red or red and white youngsters. They will, however, produce yellow youngsters with white splashes the same as red Carneau will produce youngsters with white splashes. The yellow or yellow and white Carneau is equal to the red and red and white variety in every particular, with possibly a little in its favor in the way of production of whiter meat squabs and a little in the favor of the looks of the squab, as a yellow feathered squab will dress up a little nicer and cleaner looking on account of its pin feathers being lighter in color. The pin feathers on a red squab are much darker than those on a yellow feathered squab.

The yellow Carneau as a rule is freer from dark beaks and slate or bluish feathers, which characteristics tend towards darker meat. The squabs produced by yellow and white Carneau are just as large and just as many in number as compared to those of the red variety.

WHITE CARNEAUX

It may be possible to secure a white Carneau by merely selecting and breeding Carneau with the greatest number of white feathers. I believe the term White Carneau, however, could be justly applied to a white bird that came within the standard for White Carneau in size, color and other markings, even if it had a small percentage other than Carneau blood in its veins.

I can substantiate the consistency of this statement by pointing to breeds of chickens and animals. For instance, with chickens

there are white Plymouth Rocks, white Orpingtons, white Wyandottes and even white Rhode Island Reds that are made breeds and have been created by crossing in chickens with white plumage with the standard bred in order to obtain the desired feather color.

A white Plymouth Rock chicken was first made by using the barred Plymouth Rock as a basis, then the size, shape, color of legs, feet, etc., was retained, but the feather color was bred to white by crossing in white chickens of some other breed and then breeding everything out except the feather color. Buff Rocks, Black Orpingtons and many other varieties of chickens have been established in this way; then, why is it not possible to cross a white-feathered pigeon with a Carneau, retaining only the white plumage qualities of its ancestors? If this can be done to such an extent that all the qualities of a Carneau are retained, including type, size, weight, color of eyes, beak and its breeding qualities, so that competent judges of Carneaux cannot detect any difference in the bird except its feather color, then why is this not a true white Carneau and why should it not be accepted as such?

Such an undertaking and accomplishment is far more difficult than might at first be estimated, and as it would require scientific effort, patience and time to bring about the desired results, why not reward a person who is successful in his undertaking by praise rather than condemning him?

Here are some of the difficulties one will encounter if he starts to create White Carneaux by crossing, which in my opinion is the only way that they can be bred; the first offspring from a white bird and a Carneau will more than likely have dark feathers, dark beak and dark skin. The feathers will either be reddish or bluish in cast or both, and the youngsters will apparently be farther away from the white color than its Carneau mother or father.

This offspring, however, must be crossed back to a Carneau in order to keep it from getting too far away from the Carneau type and blood. Then the offspring from the cross must be again mated to a white bird with a possible chance of some of their young being white. Right here, however, is where the breeder will strike his first obstacle, as the white youngsters from such a combination will have black or blue eyes and, as

the White Carneau standard specifically states that the eyes must be orange, this is a stumbling block which few breeders will ever get beyond. It can be accomplished, however, by again and again breeding back to the Carneau and again and again breeding the offspring to white birds until the white bird is produced with an orange eye, then by crossing such birds back



WHITE CARNEAU

One of the essential features of a white Carneau is yellow or orange eyes which is the most difficult part of the breeding as most white birds have dark eyes.

to full blooded Carneau and their offspring with other white birds with orange eyes which have been produced in the same way. In time they will produce orange eyed white birds that will reproduce their kind and can be perpetuated as a breed.

There are other points, however, and difficulties that must be considered and worked out along with the color scheme and the orange eyes. One is the light beak which is provided for by the White Carneau standard. It is hard to produce the white bird with orange eyes and a light beak, especially so when the first cross between a white bird and a Carneau will invariably throw youngsters with dark beaks and the first orange eyed bird produced will invariably have a dark beak. Difficulty also arises in maintaining the Carneau size and type. White Homers can be crossed in, but they are undersized and it is almost impossible to eliminate the strong Homer type in future generations. A White Runt is oversized and it is hard to eliminate the Runt-like appearance from future offspring. A white Maltese hen pigeon furnishes a good type, except the neck is too long, and it is hard to eliminate the uplifted tail. Therefore, when one asks what kind of a white bird can be used, the answer is that the white bird must be manufactured for this purpose by crossing and recrossing white Homers, white Runts and white Maltese, until a bird is produced that has almost the correct Carneau size and type.

For the benefit of anyone who might undertake this project, I will add that only a small percentage of white Homer blood should be used. Just enough to make a bird thrifty and active and to keep down the size slightly. A cross between a white Runt and a white Maltese will be a little oversized, but a well divided composition of a Maltese and a Runt is almost the desired type for a Carneau, except as just stated, the possibility of it being a little oversized; so a small amount of Homer blood is necessary to reduce the size.

The next difficulty is the breeding qualities, as the Carneau is a fast breeder, and it would not be consistent to create a white Carneau in size, shape and other qualities without maintaining its breeding and squab-producing proclivities. This can be done if the white offspring is created in such a way that at least seven-eighths of its blood is Carneau. If anyone thinks that it is a cinch and an easy matter to breed and create a

White Carneau by crossing, let him be convinced of his error by trying it out for himself. There has always been a great demand for birds with white feathers, as they seem to attract the eye. The White Carneau when perfected, like white chickens, will be a very popular breed. There are a few White Carneaux in existence, but as yet this variety is in the experimental stage. It, however, is a good cause and a worthy undertaking from a commercial standpoint, besides the work being most interesting and instructive to one who likes pigeons and enjoys accomplishing hard tasks.

The first test of a White Carneau is the color of the eye. An orange colored eye is necessary. Without this the type, size and feather color mean nothing. Even though a white bird has an orange colored eye it must have the other qualities to qualify as a White Carneau and must be bred so that it will reproduce itself in color, type, and other necessary qualities when mated to a White Carneau.

The fact that the White Carneau must have orange eyes makes them much more difficult to breed.

Mr. A. Besche in the American Pigeon Journal says: "White Carneaux are fast gaining in popularity and we hear considerably more of them now, especially so in the past twelve or fifteen months. To those who are breeding whites I should say, "stick it out" for I see nothing but a prosperous future, "greater demands," and hence better prices. Those who are not breeding them should try a few pairs and help bring this beautiful color even more to the front."

BLACK CARNEAUX

Black Carneaux have not yet been produced to any great extent. They can be produced in the same manner as the black Orpington chicken is produced and along the same method as is described in the article on White Carneaux. It is almost impossible to produce Black Carneaux by selection, even though you might continue to select and mate together the darkest colored birds for an indefinite period. The result would be a dark blue or slate colored bird instead of a black one, as the dark pigment in a Carneau is not black but blue, and it is this bluish tint with the red that gives the red such a rich maroon cast.

A bird with all the Carneau characteristics and one that will comply in type, size, head, color of beak, eyes, and in every other detail to the standard, can be produced with black, dun, white or bluish feathers by the process of crossing in a black pigeon of some other breed or any other color desired, and then breeding out the foreign blood by crossing and recrossing the offspring back to full blooded Carneaux, saving only youngsters of the desired color or those that had a tendency to the desired color.

To establish a black breed of Carneaux therefore, by this method, we must cross Carneaux with black pigeons of some other breed. Homers, Runts or Maltese will do, but preferably a cross between these three breeds as is described in the article on White Carneaux.

Black Homers, Mondaines, Runts and Maltese do not have light beaks, and there are very few breeds of black pigeons that have light beaks. There are black Tumblers with light beaks, but they have pearl eyes, and a Black Carneau must have a Carneau eye and not a Tumbler eye; hence the Tumblers or any pearl-eyed pigeon cannot be used in the production of a black Carneau without encountering the necessity of breeding out pearl eyes, which would be an added obstacle.

The offspring of a black pigeon and a Carneau will occasionally be dun or brown with light beaks, but offspring of the same combination are more apt to be a dirty red with a smutty or bluish breast and rump, and some of the squabs by the same mating are apt to be mottled in various colors, with occasionally a blue barred offspring; none of which can be used in the making of a black Carneau except the duns or browns with light beaks, and if these show bars on their wings they cannot be used.

By recrossing the duns and browns with light beaks with other birds of the same color and produced in the same way, now and then a black one will appear with a light beak. If it is then crossed back with a full blooded Carneau they will produce an occasional black youngster with a light beak, and after this point is reached successfully by several different routes, so as to keep fairly free from in-breeding, such birds can be mated to others produced in the same way and remated until they will perpetuate themselves in color. It must be kept

in mind that in the effort to secure color, the type and qualities of the Carneau must not be sacrificed or lost track of, otherwise the result would not be a black Carneau.

Black Carneaux must have light colored beaks, orange eyes and Carneau type in all other particulars. They must be bred so as to reproduce themselves in all qualities including light colored meat and beaks.

Mr. A. Besche writing, on the subject of Black Carneaux for the American Pigeon Journal, says:

"Up until the present time we have heard but little of the black Carneau, but few have made their appearance in the show room, and are no doubt bred by comparatively a small number of fanciers. What is needed to bring this additional color to the front, and to prompt more fanciers to breed them is to have the several clubs take them up and include blacks in the Carneau Standard. We could procure classifications in the premium lists of the various shows which are held yearly in the different parts of the country. You will then see this color forging ahead rapidly. No one can deny that a good jet black, with rich beetle green lustre about its neck, and deep solid color body, wing and tail feathers, and bred according to a revised standard, could not help but make a handsome bird. Yes, I may add, that if my judgment does not mislead me, these will in time compare with the other colors."

UTILITY RATHER THAN FANCY

By E. H. EGGLESTON

From Hearst's Sunday American

The public, as well as the majority of Carneau breeders, have held Carneaux with white feathers at too small a value, sometimes to such an extent that these birds are considered crosses, or a poor class of culls, and has hurt the commercial end of the industry. As you know, the Carneau is a utility bird, and it could never be anything else any more than a Plymouth Rock chicken would be classed as a fancy breeder. Of course, the Carneau is a beautiful bird, and this is especially true of solid reds and yellows, and it is all right to produce all red or all yellow Carneaux and to compete for prizes in these classes, but it is not all right to allow a few fanciers to make a hobby

of an industry to the detriment of those who are following it in a commercial way. The men that raise fancy Carneaux, probably combined, do not own two thousand birds; yet they dictate the policy of the future of this breed over thousands throughout the United States who probably own half a million birds. It is a case of the tail wagging the dog, and the strangest part of it all is that these fancy breeders, are chiefly responsible for the present conditions, are not satisfied with the status of affairs, and complain about their customers demanding show birds for squab producing purposes.

Almost every day I receive letters from people who want Carneaux for squab breeding purposes, and yet they describe and expect what is now classed as show birds. They must not have any white or blue feathers. I am not alone in this position, as almost everyone that sells a few Carneaux is up against the same proposition. Now what is responsible for this condition? Nothing more than the fact that the prevailing color of Carneaux is red and white or yellow and white, and that birds of this color have been legislated against by the fancier's standard until the public in general has been educated to the belief that the Carneau that has white feathers on its body is no good.

Now, I have a plan that I believe will remedy conditions, and be a big boost for the Carneaux, both as a utility and a show bird. The success of all shows depends upon their financial success. Most pigeon shows today are run at a loss, because the general public is not sufficiently interested to make the gate receipts large enough to offset the expense of holding the show. Even when pigeon shows are held in connection with poultry shows, the pigeon end of it is not much of a success from a financial standpoint. Poultry breeders do not meet with this difficulty, for the reason that the fancy end of the business has not run away with the utility end, and in all poultry shows there are more birds entered in the utility classes than in the fancy classes. The people who enter Plymouth Rocks receive a double benefit. They gain a certain amount of publicity, and learn what constitutes first-class birds in their variety. In addition thereto they enjoy the sport of competing equally as well as the fancy.

Now, my plan, in short, is to bring about a similar condition with pigeons, and I am interested in the Carneau, and as I

believe the Carneau the greatest utility bird known, naturally believe that the place to start is with the Carneau. I believe that if our standard was changed so that the average utility Carneau breeder would have a chance of winning prizes, and so they could show birds with the object of receiving some benefit by publicity, as well as for honor, that almost immediately we would see a large number of entries in each show in this class, and in a short time there would be a lot of interest created among the utility breeders. And with the aid of the many Carneau breeders throughout the country, we would be able to increase our membership naturally, and bring about many things favorable to the Carneau cause.

Now, here is the standard that I would favor: I would start out with this statement that the prevailing color of Carneau pigeons was red and white and yellow and white, that the red should be a dark, rich, bronze color, etc., and the yellow a dark golden shade; that these birds had white feathers over their body in irregular designs, and follow this by describing the ideal type, weight, size, head, beak, eye, etc., with instructions to the judges that birds should be judged and graded by comparison with other birds in the same class, and points of excellence should be reckoned by the following schedule: Color to count 10 points, weight 8 points, and so on down the line, using the same schedule as our present standard gives, except I would change the proper weight to 19 to 23 ounces for cocks and from 18 to 22 ounces for hens. Birds over or under this weight would not be disqualified, but count so many points for each ounce under or over. I would next give the same schedule for yellow and white Carneaux, except changing the color from red to yellow, then a class for all red Carneaux and for all yellow Carneaux. Birds in these classes would not be eligible to compete in the red and white, or yellow and white classes. Following this the same standard for all white Carneaux, then there would be a standard for utility Carneaux shown in pairs. Any Carneau color eligible to compete with this class, preference to be given to the birds freest from slate and bluish feathers. In this class I would advise that the points of color be reduced and the points for weight and breast be increased.

I would not favor an A. O. C. class, and would cut out the rose wings, as such birds cannot be reproduced and are only

chance types of that color. Naturally there would be quite a howl to go up on the adoption of such a standard, and we might lose some members among the fancy, but by getting busy with the utility Carneau breeders throughout the country, I am sure we could gain ten members, yes, a hundred, for every one we lost, and such members would have some money interest in the business, and be of more value to a successful organization than a fancier. However, I do not feel that it is necessary to lose the fancy breeders, for with the red and yellow standard they should go ahead competing the same as they have been. In a short time, however, we would to a great extent change the present prevailing opinion that the Carneau should be red and not red and white.

I am well satisfied with the results that I have accomplished this year in the sale of Carneaux, as I started in the spring with over 4,000 marketable birds, and sold all I cared to spare at good prices before molting time, and I believe that next year will be even better, for I have had an increase in the sale of birds each year over the previous year, but that does not alter the case. I am not speaking from a selfish standpoint, but from a standpoint of what I believe will be greatly beneficial to the Carneau cause.

SOLID COLORED CARNEAUX

Solid colors are not important in Carneaux for squab breeding purposes.

"Any color, just so it is red" is an old-time saying that applies to some people's opinion of Carneaux. A pigeon of any size, type, shape, weight or peculiar markings seems to be acceptable to a lot of people, just so it is red or reddish.

The question is often asked: "Should squab breeders demand solid color Carneaux?" My answer is, NO! A friend of mine who raises Carneaux once stated that there were three kinds of Carneau breeders, two of which were color blind and the other sensible.

He went on to say that one class would have nothing but red Carneaux with no white feathers, and as little slate or blue feathers as possible, regardless almost of size and other qualities, with the result that their lofts were usually full of undersized,

ill-shaped, slow breeding birds. This class, as he put it, was "blind to everything but color."

Another class was actually color-blind and could not distinguish slate, gray or even blue feathers from red ones and called everything Carneau that was reddish; as a result they had a lot of Carneau-Homer and other Carneau crosses with reddish backs and slate rumps, tails or breast. Such crosses do not look like Carneaux in size, type and markings, but their red feathers lead many people to believe that they are Carneaux.

Now, do not understand that pure bred Carneaux do not often have slate or blue feathers along with the red, but if they do they will look like Carneaux in type and general appearance.

As all Carneau crosses have more or less slate or blue feathers, it is a good protection to inexperienced breeders to steer clear of birds with such feathers and thus avoid getting hold of hybrids.

The natural color of a Carneau is red, with white feathers scattered over the body, rare exceptions yellow. When the white feather is bred out, more or less blue or slate feathers appear and often the red takes on a smoky or dusty appearance. This is due to the pigment in the feather coloring. With no pigment the feathers are white, with too much they are dark blue, and so it is hard to get just the exact amount of coloring to make all of the feathers dark red with no white, blue or slate.

If one knows the true Carneau type it is easy to tell half or quarter breed crosses, as the general characteristics will crop out in one way or another in a hybrid, and this is generally true even of birds with only one-eighth or one-sixteenth other than Carneau blood in them.

As an example, a Carneau-Homer cross will invariably have a flat head with eyes near the top of the head, long bill and generally undersized, with more or less slate. A Carneau-Runt cross will show a long body, short legs, long tail and a tendency to droop the wings, with usually a short thick neck and more or less slate. Even when Carneaux are crossed with white birds of other breeds the young will show dark blue or slate feathers.

A Maltese and Carneau cross is as a rule just the opposite to the Runt cross, as the body is short, legs and neck long, and the short tail has a tendency to elevate like the Maltese. There will be some slate feathers, but not as much as in the Carneau-Homer,

Carneau-Runt or Carneau-Mondaine crosses. All such hybrids are short many of the good qualities that go to make the Carneau such a splendid all-around squab breeder.

There are many peculiar markings about the Carneau that are not common with other breeds. The type is distinct and about as follows: Medium length body, legs and neck, a good all-around compromise between the Runt and Maltese; medium sized, smooth, even bill; no feathers on legs below knee; large round eyes, orange or red in color, set in the middle of the head; forehead high and prominent; broad back, deep keel and good carriage.

It would be just as nonsensical for a person breeding Homers to discard every bird except the pure white ones, or some other solid color, as for one breeding Carneaux for squab purposes to discard everything but solid red birds. We all know that the Homer breeder would be sacrificing a lot of his best breeders of good squabs for feather color, and just so with the Carneau squab breeder if he discarded all except solid red Carneaux.

CHAPTER IV

OTHER BREEDS OF UTILITY PIGEONS

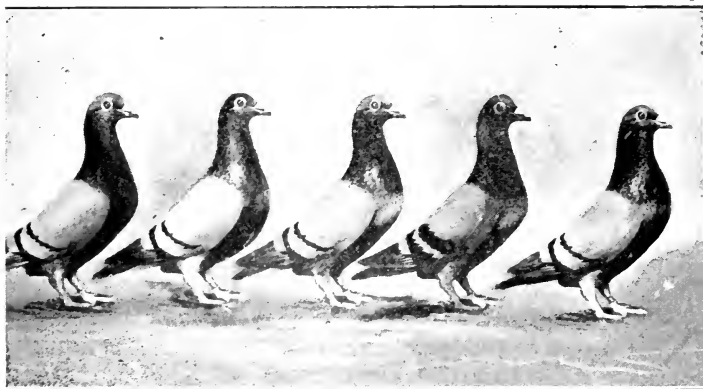
To give a full history and description of each variety of pigeons best adapted for squab breeding would consume considerable time and space. I will, therefore, confine my remarks to a brief description of the most popular breeds of today, which are Carneau, Homers, Runts, Hungarians, Maltese, Mondaines, Polish Lynx and White Kings. Most any of these birds like the popular breeds of chickens are all right and each have their place in squab breeding.

HOMERS

The Homer is a bird a little larger than a common pigeon, but, owing to their build and feeding qualities, they produce squabs almost twice as large as a common squab, and a much fatter and better flavored squab. Homers come in all colors, black, white, blue, red, dun, silver and commingling colors, with blue barred and blue checkered as the predominating color.

By reason of the prolific qualities of the Homer and its production of a plump, fat, meaty squab, it stands second to none as a utility pigeon, and if it were not for the fact that its squabs are small compared with other popular breeds hence bring less on the market, the Homer would stand foremost in the country as a squab producing variety. The utility or squab breeding Homer is the same breed as the Racing Homer, except one branch of the breed has been developed for its homing and fast flying tendencies, while the other has been developed for the production of squabs. The homing instinct is an objectionable quality in a squab producing or utility pigeon, for the reason that if liberated they will fly away, unless the bird was raised at the place liberated. They are not able to find their way back home, as is generally presumed, unless they have been trained

for that purpose, by first taking them a short distance from their place of birth and liberating them, then a greater distance and greater distance until they will be able to return home from a distance of several hundred miles. Homer squabs are desired where squabs are served in cafes, clubs, hotels, etc., as a part of a regular meal, but the person who orders a squab as a principal part of his meal prefers a larger bird, and the same is true with private trade. As there is also a ready market for large squabs, and as squabs range in price according to the number of pounds they weigh per dozen, the natural desire of squab breeders is to produce a large bird. The effort has con-



BLUE BARRED HOMERS

sequently been to try to develop a breed that would produce as many squabs as the Homer, and at the same time a larger and more valuable squab.

Homers are very thrifty, hearty good feeders, and make splendid mothers. On account of this quality they are often kept and used as foster parents for the purpose of hatching and raising the young of other breeds. The Homer seems to have a wild-like instinct, and is quick to fly off its nest and slow to return to it, hence the successful breeder of Homers must bear this peculiarity in mind and manage his pens of Homers in a way not to disturb them, and in a way to make them as tame

as possible. The Eggleston plan of double nests and squab house with the aisle in front is especially adapted for this purpose. The chief objection to this breed, is its smallness in size. But in almost all markets throughout the country there is a ready demand for fat, well developed, plump, small sized squabs, which the Homer squab will supply better than any other breed. Therefore, the Homer as a squab producer has its place among squab producing pigeons, and is a profitable breed to raise.

GIANT RUNTS

Some jester in ancient times must have given this largest of all pigeons its name which has until recently been just plain Runt, but to overcome the likely impression that a Runt pigeon was a small breed, the American breeders have added a prefix and now the breed is known as the GIANT RUNT.

The Runt is an ancient breed. John Moore in his "Treatise on Pigeons" edited in London, 1735, calls the Runt an ancient breed. He mentions the Leghorn Runt as an exceedingly large, broad-breasted bird with tail slightly erect and wings somewhat drooping. He describes the Spanish Runt as standing up more boldly with wings resting on the tail. But the nearest of all to our standard Runt of today seems to be his description of the Roman Runt. He states that the Roman Runt stands up boldly, very broad-breasted and weighing up to two and a half pounds. Some other birds were even heavier than that for, as he states, a Runt will improve in size for at least four years. The Roman Runt seems to be the one the Germans have as they call it the Roemer Taube or Roman Runt.

Moore states that even back in 1735 he had seen gentlemen pay 25 pounds (\$80 to \$85 in U. S. money) for a pair of Runts weighing four and three-fourths pounds to the pair.

Mr. King writes in the American Pigeon Journal: "The Giant Runt, being the largest bird in the pigeon family, always attracts a great deal of attention. Some breeders claim that the Runt is not as prolific a breeder as the small breeds. This may be the case in some instances if the stock is old and wornout or of the stock originated from a poor-producing strain. I have found that more often the fault lies in the fact of the overcrowding of these birds."

Small individual houses, with a separate compartment for each pair is the best way to obtain good results. The added expenses in building these separate houses, will be more than offset by a year's breeding, in extra returns. The dimensions of the individual houses, are as follows: The house proper is seven feet long, six feet wide and six feet high. They are built on the double-deck order, having two floors and each floor is divided into two compartments, making four in all. There is a slanting roof over half of the top. The nest boxes should be at the back and fifteen inches square. The approximate cost, including material and labor, for the above houses, is \$12. This will house four pairs of breeders.

The white Runt is a faster breeder than the other varieties, although there are exceptions. The average weight of Runt squabs is from three to four pounds to the pair. If one is selling squabs by weight, which is the most profitable way, the added weight is a great advantage over smaller breeds. For a strictly fancy trade, Runt squabs cannot be surpassed. On account of its size some think that the Runt squab would be coarse and lacking in flavor, but this is not the case. Runt squabs are not only large and fat but juicy and well flavored.

Runts are bred in most all colors common to pigeons and will breed true to color if one desires to pay attention to that feature. For squab producing purposes, however, color cuts but little ice, except to keep away from smutty tendencies which will tend to dark meated squabs. Sam Elton, describing the various color varieties of Runts, says in the American Pigeon Journal:

From a fancier's standpoint, the giant Runt is the most interesting breed to breed and is rapidly coming to the front and attracting a great deal of attention. In breeding blues and silvers, it is best to mate these two colors together. By continually breeding blues together in time they will become too dark and smutty or smoky in color. The same applies to the silvers, for they will become too light in color with very indistinct bars.

White Runts

White Runts are gaining in popularity rapidly. Probably this is partly due to light meated squabs coupled with the fact that people just naturally take kindly to white pigeons. The color of the white Runt should be a clean uniform white over the

entire body, including flights and tail. They should have dark on the ball of the eyes in England while pearl is preferred in other parts of Europe. The beak and claws are almost white, more so than those of colored Sells. Young whites sometimes have pinkish feathers, but these generally disappear after they molt. The legs and feet are free and clean from feathers.

Blue Runts

The blues should be of beautiful light blue color. The head, neck, flights and tail should be of a darker blue. The rump should be all white or all blue in England while on the Continent of Europe it should be white only. Blue rump is considered faulty on the Continent. The wing bars are neat and black, dividing at their lower part and rejoining at the other end in the shape of a long narrow "V." Between this "V" a long blue triangle is seen. The tail feathers terminate with a black band of about $1\frac{1}{4}$ inches or more. The outer side of the other feathers are white, beginning at the black band and extending upward for about 4 inches. The beak and claws are a dark slate color. Legs and feet are clean and free from feathers.

Faults are rump splashed with colored feathers and dull or smoky blue or white feathers in the flights, tail or body.

The blues are about the biggest Runts. Sometimes they have white feathers under the abdomen and on the cuff or leg. This is a fault that may be overlooked, provided such feathers are in small numbers. Light blues are preferred to dark blues. Blues and silvers of great size and feather lengths are sometimes mated to a good white in order to improve the size and the length of the feathers in whites. Young blues or silvers from these matings should not be mated to a pure blood blue or silver or to any other Self-colored bird, but to a white. Never mate a delicate, long-feathered bird to a short, cobby, broad-backed, big-chested bird as no improvement will be gained from such a mating. In order to secure light blues, they are mated to silvers, but here the blues gain and the silvers lose in color.

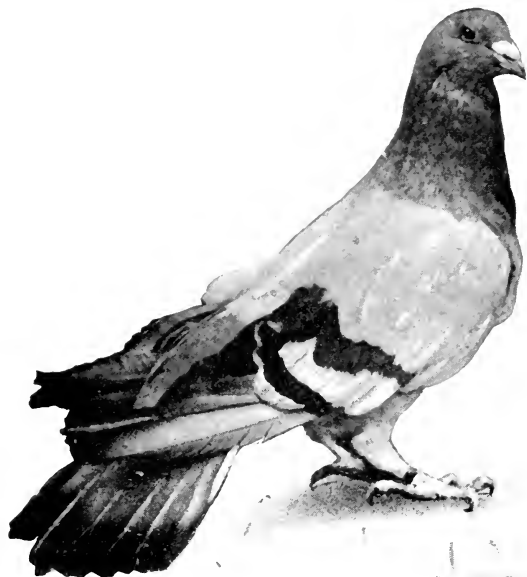
Grizzle (Pique) Runts

I have never seen this variety out of France. They have almost entirely disappeared. There are two varieties: the white-speckled black and the grey-speckled black. The former are

most favored. It is a very pale white and the latter a very pale gray while young, the black markings appearing only after the first molt.

Silver Runts

The silvers are of a clean, pale cream color. The wing bars and tail band are a dark brown or black. I have never seen a



SILVER RUNT

silver with black bars. The neck and breast are brilliant brown. The rump and under-wing color is a pure white. The beak and claws are pale pink, but a little darker than those of the colored Selfs.

The great fault is in dark or dull color. They improve still more than the whites after second molt. The grays become darker. Those marked on their necks and bodies with red feathers have no value. They should have white and

black or gray and black feathers only. The beak and claws should be clean but slightly darker than those of the whites. The legs and feet are clean and free from feathers. They have pearl eyes.

Sels

All sels should be of a solid uniform color all over the body. They should have no mixtures or other colored feathers on their body. They should be clean, clear and without smokiness. Rumps should also be clean and of the same color as the other part of the body. The beak, claws and feet should be clean. All colored sels should have pearl eyes.

Yellow Runts

Yellows should be a solid uniform color throughout. They should not be too pale nor should they approach the red. The beak and claws are clean and have no marks on them. They should be a pale pink. Legs and feet are clean. Some faults are ashy rump and dark marks on the beak or white feathers in flights or tail. Sometimes the young have whitish feathers in the flights or the tail, but they generally disappear after the first moult, if not, then eliminate the bird. Never mate two pale yellows. Never mate yellow to black nor yellows to birds with barred wings.

Red Runts

The reds should be of a rich chestnut red over the whole body, including flights and tail. The beak and claws are rather of a flesh color. Faults are smoky rump, dull red or too pale a red. The only way to secure good reds is to breed from red matings. I never had a good red from anything but two good reds, and well selected reds at that. Good reds are the most difficult of all Runts to breed. Red hens run rather too small. Never mate a red to birds with barred wings.

Black Runts

The best blacks are those with a brilliant neck as low down as their breast (a reflecting beetle green). The beak and claws are pale pink as far as possible. Nearly all blacks have beaks

that have a dark-colored crown or dark markings toward their extremity. It is very difficult to secure a perfect black plumage and a white beak as well. Faults are dull smoky-black color. Entire black beaks are to be discouraged. Never mate black to yellow. In order to conserve a white beak in blacks, they are mated to a good red with a white beak.

The strength of the bird is its type, perfection of its carriage and the beauty of its head and eye, and last but not least, its squab producing qualities.

HUNGARIANS

The Hungarian is peculiar both as to type and color markings. They are a most beautiful bird, stand erect with head and tail uplifted on the order of the Maltese pigeon but not so extreme. Their color markings are regular and positive, generally black and white but can be bred in red and white, blue and white and kindred colors. Starting from the butt of the beak, a strip of white extends across the head, down the neck and ends in the center of the back with a connecting ring of white feathers around the neck extending to the under part of the bird which is all white. The face, breast and tail are black and the entire wing is black except the end of the wings, or flights, which are white. All other colors are marked the same with the colored feathers taking the place of the black.

The Hungarian is very hearty, an exceptionally tame bird, very domestic, an extraordinary good feeder and a splendid producer of extra large golden meated double breasted squabs in goodly numbers. Mr. Lewis in American Pigeon Journal says: "One of the most beautiful utility breeds of pigeons is the taped Hungarians, with their contrasting colors of black and white. The first birds of this kind that we had in this country were imported from Hungary from which they derived their name." The Hungarian pigeon is a very peaceful bird. I suppose this characteristic was acquired after they were imported from the land of trouble, which is more than we can say for the originators of the breed. The male birds seldom want to claim an "affinity" and one never finds eggs or squabs destroyed on account of continual fighting going on in the lofts, which often happens with some breeds where more than three or four pairs

are kept in one pen. I have often taken a squab from some other variety that was not getting properly fed by the parents and put in a nest with a pair of Hungarian squabs and the old birds would raise the three to be fat and plump at four weeks



BLUE BAR HUNGARIAN

of age. In the show room these birds are very attractive on account of their color markings.

The beauty and many other qualities of the Hungarian should make it a popular squab breeder and a good show bird.

MALTESE

The Maltese is also known as the Maltese Hen Pigeon probably because it resembles a chicken about as much as it does a pigeon. Its habits are like all other pigeons, except it is a poor flyer, likes to nest near the ground and has greater strength. The Maltese is not quarrelsome but will fight if given cause

and can whip any other breed of pigeons. The Maltese is a splendid feeder, healthy, and takes good care of its young. As squab producers they have few equals as to the size of the squab and especially the amount of meat on the breast. In this respect the Maltese squab is more like a quail only much larger.

The Maltese is an old variety. Mr. Pearce writing for the *American Pigeon Journal* stated: "The origin of the Maltese like other varieties appears to have no particular starting point. When Noah went into the ark, he had several birds known as doves, but possibly our Homer fanciers would claim these as the first of the Homers for the fact that these doves did manifest a homing instinct when one returned to the ark with the olive branch. Like other creatures, when going back to the time of the flood or earlier, the question of origin is as puzzling as it is interesting."

In supposing that all so-called varieties originated from these original doves, the question is naturally asked: "Why the many colors, shapes and sizes?" They are possibly due in part to the influences of climatic conditions, effects of mineral absorption, environment, freaks in nature, special selection and mating by man. Thousands of reasons might be produced to partially substantiate the origin of all the numerous varieties.

The Exhibition Maltese is the same as the squab producing bird except it is bred smaller and more attention is given to the length of the neck and legs and the upright carriage of the bird. Dr. Kleeman says: "Maltese breeders and fanciers are agreed that the true Exhibition Maltese with long, well arched head, long, thin, curve neck, long straight legs and short coupled body is one of the hardest birds to breed true to type. The average pair of Maltese will raise six pair of squabs a year, figuring conservatively, and out of the six pairs one can expect one pair of show birds, two pairs of stock birds which lay the foundation for more show birds, and three pairs of culls."

Split tails in Maltese are very hard to overcome. This can be accomplished however by mating such a bird to one that has a short, full, broad tail while the bird must have an oil sack. Wry tail is another defect which is very hard to overcome as it seems to be hereditary. I have mated wry-tail birds—that is a left wry with a right wry—but to produce the desired result the birds must both have oil sacks, otherwise the off-spring will develop

split tails. Short wing flights crossing in front of the tail can only be produced by mating a short-back bird to a long-back bird and in this way one can correct this defect and strike a happy medium.

C. R. King writing for the American Pigeon Journal covers the Maltese nicely when he says: "California has long been noted for its fine Maltese. In fact, there is no doubt that there are



WHITE MALTESE

more and better Maltese bred and raised in California than in any other state in the Union. The climatic conditions are such that the birds seem to develop and thrive from the start.

From the utility standpoint, the Maltese is one of the most valuable birds. They are very strong feeders and take good care of their young. They are used quite extensively on the Pacific coast as a producer of 'double breasted' squabs for market. These squabs weigh around twelve pounds to the dozen. The Maltese is an ideal bird for crossing, being short, blocky,

and very full breasted. For this purpose it is used with the Runt more than any other breed and probably one-third of the squabs raised on the Pacific coast are from this cross. These squabs range in weight from twelve to eighteen pounds to the dozen. I have raised a few that weighed twenty-two pounds at four weeks of age. This cross, and in fact any cross in which the Maltese is used, make strong and healthy breeders and feeders.

Quite a few of the Homer breeders, especially breeders that have white birds, are crossing them with the Maltese. This makes an ideal cross, being fast producers of fine-shaped squabs which weigh from eleven to thirteen pounds to the dozen. We have crossed the red and the yellow Carneau, which results in a fine-looking bird, and produces squabs that weigh from twelve to fourteen pounds to the dozen. This is about the only successful cross one can make with the Carneau on account of the danger of dark-skinned squabs, but by crossing with the red or yellow Maltese one is sure to produce white-meated squabs.

From the fancier's standpoint, the Maltese is considered one of the most difficult birds to breed to perfection. First-class specimens must be 'well up' on legs, short back, long neck, carry wings folded in front of tail and must be of good size but not "beefy." Fanciers of this variety consider themselves lucky if they can produce one or two top-notch specimens in a season's breeding, and it is usually from the stock pairs that the best results are obtained. First-class show birds are quite scarce and bring good prices, ranging from \$15 to \$50 per pair. First-class utility stock ranges from \$3 to \$6 per pair."

SWISS MONDAINES

The Swiss Mondaine is a pigeon larger than a White King and smaller than a Runt. They are of longer legs and neck and are more graceful looking than either and are indeed a very beautiful bird. They are becoming very popular in America both as squab breeders and show birds. Those who breed them claim they are among the best as squab producers, hearty, thrifty and exceedingly domestic.

It is claimed that the Swiss Mondaine came from Switzerland, but be that as it may, the breed is now recognized and they have a recognized standard. There is a Swiss Mondaine Association

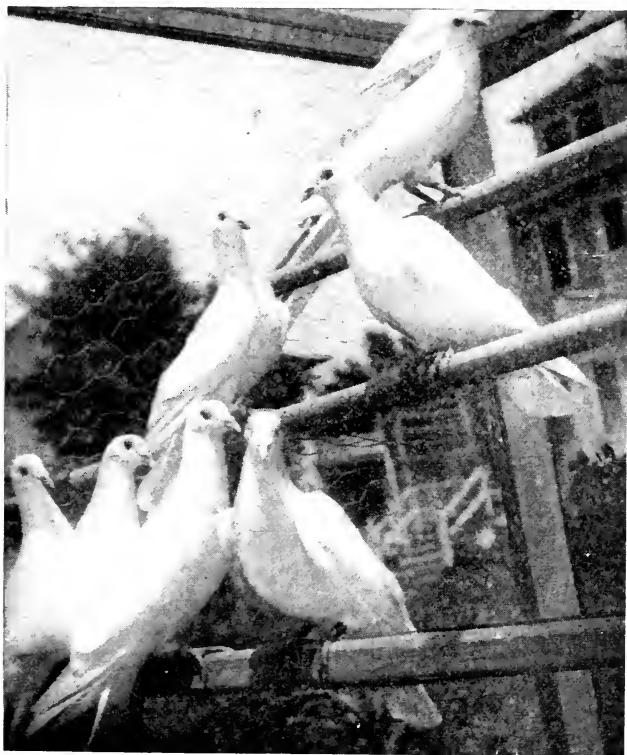
with a large membership and many Swiss Mondaines in America.

There are many large breeders of Swiss Mondaines throughout the country among them are F. M. Prevost and Wilbur T. Helm who have been kind enough to furnish some information regarding this breed. A portion of letters received from them is quoted below:

Mt. Clemens, Mich.

Mr. E. H. Eggleston:

Your letter of recent date received and I am enclosing you Swiss



PART OF A PEN OF WHITE SWISS MONDAINES

Mondaine standard. I consider this a wonderful squab producing bird. I have over four thousand pairs of these birds and am meeting with great success shipping them to all parts of the country for squab breeding purposes. I filled one order for one thousand pairs.

To start with I purchased several pairs at eighteen dollars per pair from a party that came direct from Switzerland in 1905 and have kept them and improved the strain ever since. I have never seen such squab breeding. Squabs average three pounds in weight at twenty-four days old.

I have a very large plant constructed along your lines and ideas which is giving me the greatest of satisfaction.

F. M. Prevost.

Oxnard, California.

Mr. E. H. Eggleston:

The following is some information regarding Swiss Mondaines.

For almost a decade there have been a few White Swiss Mondaine pigeons in this country, with a light scattering of the Blue-Bars and an occasional Silver, which is an off-shoot of the Blue-Bars.

The White Swiss has been in a few breeders' hands who realized their worth and as none of their owners happened to be men who kept them for a purely commercial purpose, but who were at the same time rather jealous of their pets, their price was prohibitive, in those days when a squabbing pigeon was considered a child's plaything or at most, far less valuable than a common chicken.

However, today a utility pigeon's worth is appreciated and its worth is high or low according to its production. And as the Swiss Mondaine's squabs run from 15 to 18 lbs. to the dozen, good, healthy birds of this breed are worth considerably more than the average utility pigeon whose squabs usually average 10 lbs. to the dozen.

The number of squab marketed from a pair of Swiss Mondaines will equal the production, squab for squab, of any of the utility breeds that produce the 12 lb. squabs. The consumption of grain per pair is such a slight amount over that of the producers of the 12 lb. squabs, that unless there was large lofts of these birds this increased grain consumption would hardly be noticed.

The scarcity of the White Swiss Mondaine is their only drawback for the commercial squab plant, for this scarcity tends to keep their selling price well above that of the more common utility breeds.

However, the writer knows of a number of relatively large commercial plants that are "running up" flocks of White Swiss to take the place of the birds they now possess.

Those that are interested in pure bred live stock will appreciate the fact that a number of the leading White Swiss Mondaine breeders have a Record Association under way that will issue registered pedigrees on the White Swiss, this in itself may not amount to very much at the present time,—but time will tell, and in every instance the non-registered are forced to give way to the bird, stock or hog that has its pedigree of pure breeding.

The White Swiss Mondaine is a bird that has not been pampered with its private apartments, it has had to go into regular, every day squab houses and in doing this it has been working under a handicap, for it's a large bird, but in the little 12 in. nests it has proven its worth, and today the squab house with the 14 x 14 in. nests that are well filled with the bouncing twenty to twenty-four ounce squabs is as nice an investment as any one could wish for.

The bird itself is "a long, sweepingly upright" white pigeon that realizes its size and strength and on that account is not nervous or flighty. It has a deep-hazel eye that is remarkable for its "liquid depth" and the smooth red, eye-cere and feet are the finishing touches to a graceful, well groomed bird, who has been pure bred for at least fifteen years with "speed in production" as the motto for all matings.

WILBUR T. HELM.

Crested Mondaines

I confess my ignorance regarding this breed. I have tried to secure information with reference to same, but have made but little headway. The bird with a crest called Mondaine is a large, fine looking specimen of a pigeon, an extra good squab producer while it is active, which is chiefly in the spring and summer months. This bird might possess many qualities from a utility standpoint, but with no more direct knowledge or information, this is as far as I can go.

POLISH LYNX

As the name would indicate the Polish Lynx pigeons originated in Poland. The breed is a very old one but as yet comparatively unknown in America as squab breeders. They are of heavy blocky type, low short legs, and broad across the back and full breasted.

Polish Lynx are bred in two colors, blue with white bars, where the ordinary pigeon has black bars and black and white speckled. They are certainly a very beautiful bird both in type and feather color and I understand are good squab producers. Although the author's personal experience with the Polish Lynx is limited, I could almost vouch for it on general good looks and its seeming domestic habits.

WHITE KINGS

There is no bird in America that has made the rapid stride in popularity that the White King has the past few years. Since this breed has become standardized it has improved wonderfully in size, type, squab producing and other qualities.

I attribute this principally to its color and the good judgment used in selecting a standard that allowed for the development of the points that make birds good fast breeders of large fat squabs.

Following is an article by Prof. Frank C. Hare on the standard and origin of this new bird: "Years of scientific line-breeding by American fanciers with a definite standard or ideal to attain, resulted in the formation of a new breed of pigeons of unquestionable merit. Although this breed, quite appropriately called the White King, is a composite of breeds in various classes, so completely have the different types and characteristics been harmonized, that present-day specimens have few birthmarks to indicate the heterogeneous parentage.

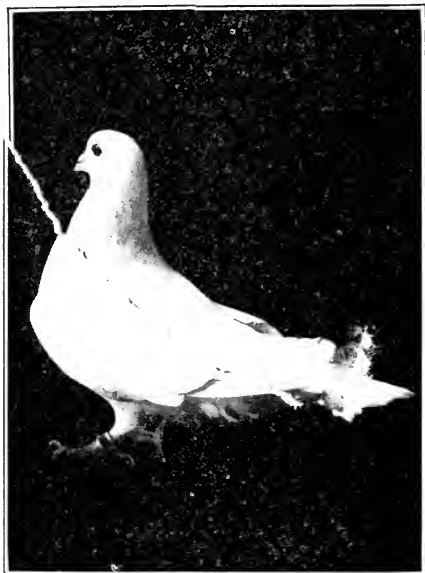
The White King is a middle-weight pigeon, neither so large as to be cumbersome and slow breeding, nor yet so small as to appear insignificant among the larger breeds. Its attractive appearance is emphasized by the remarkable development of the deep, well-rounded breast, the broad, strong back, the compact, plump body carried horizontally on the short well-set legs. It is a breed of curves, with each section of the body blending easily into another, and, when these rounded sections are seen in the harmonious grouping found only in the White King, the highest type of physical beauty is portrayed.

A delineation of the revised standard of the White King as adopted by the American White King Pigeon Association will be instructive to numerous breeders who have not in their mind's eye a clear-cut picture of the ideal exhibition White King, and who wish to select for the show room a few specimens that will please judge and exhibitors and prove an honor to their loft.

Let us first discard those specimens that are unworthy of consideration. The remainder can then be critically judged by the standard, weighing the defects of each specimen carefully, and deciding after this close study, what bird in each class—

cock, hen and youngster—is the best all-around White King. At this time forget that you own the birds. Judge them as they will be judged by the man who hangs the ribbons at the show.

Discard all birds with pinched breast, narrow body or those showing a “knock-kneed” tendency; all that have a long body



WHITE KING

or long tail or long head and beak; those specimens in which the eye cere (bare flesh around the eye that separates it from the feathers of the head) is white or pale pink color, and all birds with feathers or down on legs or feet.

The full-breasted, blocky, wide backed, broad-tailed White King is the ideal to earnestly strive for, not only in exhibition birds, but for utility specimens as well. The latter will produce plump, attractive squabs more rapidly and more economically than long-bodied, long-tailed White Kings. Bear in mind that

it requires four times as much nourishment to grow feathers than meat, and long feathered, long bodied squabs are rarely plump-breasted.

The head of the White King male should be rather large and broad, with a round, full skull and prominent forehead. No characteristic, except the unsightly long body recently referred to, so greatly detracts from the knightly appearance of the White King male as a small insignificant head. The eyes are large, prominent, and of reddish-brown or dark hazel color. The cere is of medium size, perfectly round, fine in texture, the same color as the beak, with a light frosting of white on the upper surface.

As the eye of the White King appears almost black in color from a short distance, the narrow band of red that encircles the eye (forming the beet-red cere) adds just the touch of color needed to beautify and brighten the white plumage of the head. Birds with white or pale colored ceres look commonplace in comparison.

Until the adoption of the standard of the American White King Association, it sometimes happened that White Kings with a few feathers on their feet were awarded prizes at the exhibitions. Permitting birds with this serious defect, even though they were of excellent type in other sections, to win any prize at an exhibition, was a blunder the evil effects of which are revealed at most inopportune times. The only way to produce clean-legged, exhibition White Kings is to breed from a cock and hen of line-bred, clean legged ancestry. Obtain your flock of show birds from a few pairs of pedigreed stock that produce red-cered, clean-legged youngsters of blocky type, rather than from a large flock of breeders of various types and characteristics. The birds with feathers on their feet are usually sold "utility stock," and for this purpose are equally satisfactory and less expensive than exhibition stock. A "knock-kneed" White King is only fit to eat. Stout legs and long, straight toes increase the stability and add to the appearance of any bird.

The plumage is very close, short, smooth and firm. Looseness of feathers is a serious defect. The web, quill and fluff of the feathers in all sections is pure white.

The wings are comparatively short, well folded, ending considerably in front of and resting on the tail. The front of the

wing (wing butt) is embedded in the plumage of the breast. Covering the fronts of the wings with the breast feathers obliterates that racy frontal appearance seen on all varieties of Homers. The records of the White Kings are not made in the air.

Exceptionally large or small specimens are undesirable. Exhibition White Kings should weigh 24 ounces for hens, and 26 ounces for cocks. It is unwise to breed from cocks or hens considerably over or under these weights.

That the standard of the White King as adopted by the American White King Association pleases not simply the lover of the beautiful in pigeons, but the practical, money-making squab producer who ships extra select squabs to a fancy trade, it is only necessary to refer to the unprecedented growth of the White King in popularity. It has completely substantiated its right of recognition as a handsome show pigeon for the fancier, and as a rapid producer of twelve-pound, plump breasted, white fleshed squabs in the lofts of those who have investigated its claims. It is a breed of deeds, not of words, a breed which typifies the American standard of industry, a beloved king among pigeons, a White King whose kingdom is ever increasing."

CROSS BREEDS

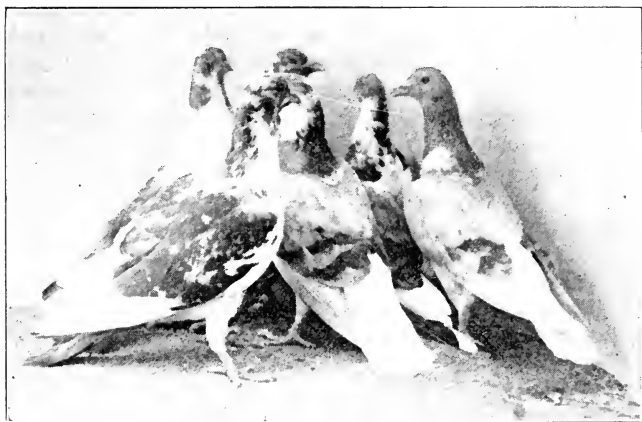
The average beginner in the pigeon business undertakes to establish, create (or manufacture might be a better word) a squab-producing pigeon according to his own architectural designs. Crossing breeds of pigeons is waste of time even by people who understand what they want to accomplish and have an idea as to the results of different crossing, for it takes years to develop a hybrid into a bird that will perpetuate itself in size, type, color, and qualities. Besides, it requires hundreds, yes, thousands of pigeons, a large outlay of capital, ample room and equipment, constant attention and endless patience. Even with all this the outcome is a gamble. How, then, can an inexperienced person, with a vague knowledge of what he wants to accomplish, with a few birds and no equipment, expect to convert himself, like magic, into a Darwin or a "Pigeon Burbank?"

This not only applies to beginners, but often to people who have been plodding along for years in the pigeon business with a few birds of first this and that variety. That some breeds are

better and superior to others goes without saying, but even an inferior breed, in my opinion, is better than newly-created crosses. With the former, one at least knows the kind he has, while with the latter it is a continuous grope in the dark.

Why experiment with crossing breeds? I have asked many people this question and this is the general run of answers: "We wanted to see what a Carneau-Homer or a Carneau-White King or a Carneau some other breed would produce."

In many cases they had the result of the cross there to show me, and invariably they were much disappointed with the hy-



SQUAB BREEDING CROSSES

brids produced. Another common answer to my question is: "We wanted to improve the size of our stock of this or that breed so we are crossing the Runt with them." Other people had, so they said, a few birds that the color was not just what they wanted so threw them into a pen of mixed breeds; and this is their reason for crossing. Others were trying to raise a dozen or more breeds without sufficient room to raise one, and were allowing these different breeds to cross and re-cross as they pleased.

A hybrid generally carries the color of one parent, the shape and type of the other and the poor qualities of both. To

illustrate: The color of a Carneau is very strong and predominates in its offspring when crossed with birds of almost any other color or breed. For instance, a red Carneau and white bird of another breed will invariably produce a red hybrid with more or less blue and slate feathers on it. Often the whole tail will be dark blue or almost black, with the rest of the body red or a reddish brown. The offspring will, of course, show some of the Carneau characteristics besides the red feathers, but all such hybrids that I have ever seen resemble their other-than-Carneau ancestors in the shape of the head and general type. As an example, the Homer-Carneau cross is generally under size, has a flat, snake-like Homer head, and a longer bill, but not as thick as the Homer bill. A Runt-Carneau cross will have a long body, short neck and legs like a Runt, with a Runt tendency to drag its wings, while a Carneau-Maltese cross will show up just the opposite, with a short body, long neck and legs, and a tendency to carry its tail high, a la Maltese.

All these and other Carneau crosses that I have seen are generally red with more or less slate or blue feathers on them, and none of them are as good as the pure bred Carneau for squab breeding purposes; so nothing is gained by crossing.

CHAPTER V

FEEDS AND FEEDING

WHEN AND HOW TO FEED

There is some difference of opinion as to the best time to feed squab producing pigeons, also as to the method of feeding. Some advocate open feeding troughs, others use self-feeders, and I have seen a few men who prefer to throw the feed on the floor of the squab house. The latter method is more often used by the breeders of a few fancy pigeons and it is probable that the squab raisers who use this method borrowed it from the fancy pigeon men.

Those who practice throwing the grain on the floor, generally feed three times a day, as much as the birds will eat up clean, at the time they are being fed. Those that use self-feeders generally fill their hoppers once a day with enough grain to last until next filling time, and those that use open troughs, as a rule, feed their birds twice a day. This is the plan more universally used by squab producers. There are objections, however, to all these plans. The objection to throwing the grain loose on the floor is that some of it will invariably be left and eaten later, and while laying on the dirty floor is apt to sour or spoil and give the birds canker. Another objection to this plan is the boldest and most hoggish birds will gorge themselves leaving little or nothing for the more timid ones. Another objection is it requires too much time with a large plant to go around to each nest room and wait while the birds are feeding and see just how much they will clean up. Then, too, with this method, it is necessary to feed three times a day, in order that the males can get food, early in the morning, with which to feed their young; at noon the birds must be fed again so that the females that are off the nest at that time will have a chance to

get something to eat; and another feed is necessary at night so that the males may again feed their squabs.

I have been told that twice a day was all that was necessary with this method, as females that were sitting will soon learn to fly off the nest at feeding time and eat along with the other birds, but my observation and experience has been that females will not stay off the nest long enough to get a sufficient amount to eat. They will, if they are hungry, fly down, but they will just stay long enough to pick up a few grains and then fly back to the nest. Pigeons do not like to let their eggs stay uncovered for even a short period of time. As proof of this, when the male takes the place of the female on the nest in the morning, and when the female again relieves the male in the afternoon, the bird on the nest will not get from over the eggs until its mate is on the nest by its side; one will slip off the nest as the other one slips on, allowing practically no lapse of time in the operation. It is unnatural for pigeons to leave the nest for something to eat as is the habit with chickens.

Self-feeders have never proven a success. No feeder has so far been perfected that will force the birds to eat the grain as it comes out of the hopper. While pigeons require several kinds of grain, they like some kinds better than others. Therefore, they pick out the choice kind first. This will leave the kind they like least or the undesirable grain uneaten and this uneaten grain will soon choke up the feeder.

You might figure that when the birds are hungry enough they will eat up this less desirable kind of grain that has choked the feeder, and that would automatically make room for the new supply of the regular mixture, but such is not the case, for birds, by actual test, will not do so. Furthermore, one day the feeder will be choked with one kind of grain and another day with another, according to the appetites of the birds on different days. With an open trough, when grain is left one day the birds will invariably eat it up in the next day, especially if a smaller portion is given them. Of course, if one particular kind of grain keeps accumulating, the mixture can be changed and the portion of that kind be reduced.

Where there are more than one pen of birds being kept, a good plan is to carry the grain left over from one nest room to another.

For instance, birds in one nest room will leave wheat, while kafir corn will be left in another, and still another will have all the grain cleaned up, so the left over wheat or kafir corn can be switched over to the pens where there was none of that particular kind left, and then the regular mixture of feed poured on top of it. Open troughs that are placed in the nest room must be protected in some way to keep birds from perching on the edge of the trough and fouling the grain.

As to the best kind of feed trough, it depends on the construction of the nest room. If the Eggleston plan of nest room construction is followed, feeding boxes or feeding troughs can be placed in the aisle outside of the nest room, which will prevent the birds from fouling the grain and at the same time place the troughs where they are easily accessible and can be quickly filled or emptied and cleaned. All pigeons have a habit of throwing the grain out of the trough, which causes considerable waste. They do this while hunting for choice kinds of grain. The troughs, therefore, should be built in a way to prevent as much of this waste as possible.

The aisle feeding trough, you will note, is built with the two ends and the back higher than the front. This is done to prevent the birds from throwing the grain out, and if the feed trough is in the aisle the feed thrown out can be easily swept up and used over again. By personal experience and the experience of others, I find that birds should be fed twice a day, early in the morning and at noon.

There are several important things to take into consideration when feeding birds, viz.: to supply feed for squabs ten days old or older, which is carried to them principally by the male bird; to supply feed for squabs under ten days, which is carried to them by both male and female, but principally by the female; to supply feed for maintenance of the male and female that have no squabs; for the maintenance of the young birds in the loft that receive little or no feed from their parents; to supply feed to the female that has eggs or very young squabs, causing her to remain on the nest the greater part of the day.

The female sits on the eggs at night and until nine or ten o'clock in the morning, and again takes her place on the nest

about three or four o'clock in the afternoon. If feed is given morning and night, the males and non-setting birds will eat up the best portion and choice grain, while the female is on the nest, and when they come off for their feed and recreation, in the middle of the day, they will find nothing but picked over and refused grain and generally not enough of that. When the female is sitting, she needs good, choice, rich food. Therefore, by feeding at noon time, when the female is off the nest, she will get what she needs in the way of feed.

There should be enough grain given at the noon feed to last over until night. This will give the males an opportunity of feeding their squabs after they come off the nest at three or four o'clock in the afternoon. The females will also have a chance to do some feeding in the middle of the day, which will produce larger and fatter squabs than if the female has to hustle for her own feed. This will compel her to leave the bulk of the feeding to the male. The birds should be given all they will eat up clean at the morning feed and a little left over for the youngsters in the loft, which, being less aggressive and weaker than the older birds, are crowded away from the trough and have to depend more or less upon what is left.

The males will eat up the choicest grain in the morning first. Then they take a drink of water and fly to the nest and feed their squabs. This will give the squabs the best and most fattening food. The food that is left for the old birds will be sufficient in strength for them. The earlier the birds are fed in the morning, the better. They generally get up at daylight, and if there is any grain left over in the trough, from the day before, they will clean that up and be waiting for more feed, regardless of how early you might get up to feed them.

WHAT TO FEED

Pigeons are strictly vegetarians. They eat grain and seed principally, with a little green stuff, such as grass, clover, lettuce or Swiss chard. They are very particular as to the quality of the grain, especially birds that are kept in fly pens. Bad or spoiled grain is apt to make them sick.

The first opinion of the average person who knows nothing about pigeons, is that they are like a chicken with reference

to eating; that is, they think a pigeon will eat and thrive on anything, including scraps and slop. About the only scraps from the table that a pigeon will eat is crumbs of bread, and bread is all right for them because it is a grain product, but too much bread is physicing.

The average person who knows a little about pigeons is generally of the opinion that most any kind of grain will do, and that an assortment of grain is not necessary. Then we have the other extremists who believe that pigeons should have a larger assortment of grain than is necessary. The latter class is generally confined to a person who has a few high grade fancy pigeons, and through his desire to obtain the best possible results, regardless of expense, he feeds his birds an assortment of expensive grain and seeds, but I have not noticed that their pigeons thrive any better than those which receive a small assortment of cheaper grain.

There are several ways to err in feeding pigeons, namely: To overfeed, to underfeed, to feed too expensive, and too great a variety of grains; to feed an assortment of grains that are too light in food values, and to feed too small a variety of grains, or grains that are not sufficiently strong in food values.

Then one can make a mistake by feeding too great a portion of certain grains, wheat for instance, which will, if fed in too great a quantity, cause bowel trouble. A well balanced feed scientifically proportioned is without question the best for not only pigeons, but animals of all kinds, including people. But such a thing is not always practical, and as several combinations of three or four different grains can be selected that will be almost a balanced feed, you will not go far wrong by the latter method, which is not hard to follow.

Three or four kinds of grain is all that is really necessary to feed pigeons, but care should be taken to see that the grain is of a good quality, and that the assortment contains about the right percentage of the different food values.

For the benefit of those who do not care to make a study of this question, I will give below a few simple formulas or combinations of three or four different grain assortments that contain about the right proportions in food values, also specifying grains that can be substituted for the different kinds mentioned.

Here are some of the combinations of cheap grains that can

be depended upon to give fairly good results, and which can generally be secured in most any section of the country for reasonable prices:

Kafir corn, 3 parts; whole corn, 4 parts; wheat, 3 parts; Canada peas, 2 parts.

Buckwheat, 1 part; kafir corn, 3 parts; whole corn, 4 parts; Canada peas, 2 parts.

Wheat, 3 parts; cracked corn, 1 part; whole corn, 3 parts; Canada peas, 2 parts.

Millet, hemp and sunflower seeds can be added to any of the above combinations in portions of $\frac{1}{2}$ part to 3 parts wheat, and 4 parts corn.

Milo maize of feterita is practically the same as kafir corn, and either of these two grains can be substituted for kafir corn in part or in whole. All three are splendid pigeon feed, and birds should be given all they will eat of these grains.

If Canada peas are not available or too expensive, they can be substituted with cow peas, peanuts or soy beans. Pigeons, however, do not take very quickly to soy beans, and will have to be educated to eat them, and the same is true of peanuts, but they will learn to eat peanuts much quicker than they will soy beans.

Wheat, kafir corn and corn should be made the basis in this country of all pigeon feeds, as each of these grains are generally obtainable at reasonable prices.

Your pigeons will to a large degree act as a barometer, so to speak, as to the proper proportions of wheat, kafir corn and corn that they should be fed, provided you notice which one of these grains they leave in the trough in the largest quantity.

Pigeons, if hungry, will eat all the wheat, corn and kafir corn you give them, even if it is not in the right proportion, but they will first eat these grains in about the proportion they should have, and then if hungry eat the balance of the kind that was over in proportion.

This is also true with millet, buckwheat and sunflower seeds, but is not true with hemp, peas or peanuts, as pigeons will eat more of these articles than is good for them, until they get stalled by an oversupply of rich food, as a child would candy or nuts.

A good practice when feeding a small assortment of cheap grain, is to change the feed combination slightly once or twice a week. Some breeders switch from one combination to another daily; for instance, wheat, kafir corn and peas one day, and wheat, milo maize, corn and peanuts the next day.

Corn is the one grain that contains the largest per cent of the different essential food values for pigeons.

Kafir corn, milo maize and feterita contain about the same food value as corn, and each contains more of the different essential food values than any other grain. Each of these grains constitute almost a balanced food, and either could be fed alone for a short period and for a longer period by adding a small portion of peas, or pea substitute.

Cracked corn is not as good as whole corn for pigeons, but is necessary in the absence of kafir corn, milo maize or feterita when pigeons have young squabs to feed, as squabs less than a week or ten days old can not take whole grain corn. Squabs can swallow whole corn easily after they are ten days old. There is no danger of squabs getting choked on whole corn, for their throats are larger than the opening in their beaks, and they can swallow anything that they can get in their mouths.

COMPOSITION OF PIGEON FEED

If one cares to go into the question of the composition of feed in a scientific way much benefit can be had by studying carefully the relative values of the different articles of feed suitable for pigeons, but even a slight knowledge gained by a hurried reading of the following facts will prove beneficial as well as interesting. To start with, I will quote from an article written by Mr. Jas. P. Kinnard:

"The feed of herbivorous animals, poultry and pigeons, contains the same four groups of substances found in the body, towit: (1) Water; (2) Ash; (3) Protein (or nitrogenous nutrients); (4) Fats; and in addition thereto they also contain another class of nutrients called (5) Nitrogen-free extracts, mostly carbohydrates, which is, by far, the most plentiful feed contained in nearly all grains and vegetable feeds. Thus it will be seen that there is no element contained in the animal body similar to the nitrogen free extracts, or carbohydrates, the most plentiful of all material contained in seeds and grains."

Nutrients

The groups of food materials are called nutrients. To a certain extent, at least, these nutrients may replace one another, although no nutrient can take the place of protein for building tissue and preparing waste of nitrogenous materials in the body. The fats and carbohydrates perform similar functions, and to a large extent, carbohydrate materials may replace fat in the food, even when a large fat production is demanded of the animal.

To supply food in the right proportions to meet the various requirements of the body, without a waste of food nutrients, constitutes scientific feeding.

Analysis of Feed Stuffs

A complete analysis of feed stuffs gives in percentages the contents of water, ash, protein, nitrogen, free extracts (mainly carbohydrates), and fats.

Water

Water, or moisture, is more or less contained in all feed stuffs, but being more than ordinary water, it has no special nutritive value. The more water a feed stuff contains, however, the less of the other nutritives it contains, and the more liable it is to injury by heating, souring, or molding. The water contents of feeds vary. In grains and other concentrates it runs from about 7 per cent to 12 per cent but larger in fresh grains.

Nutritive Ratio

The nutritive ratio is the proportion of digestible protein to digestible non-protein, but, as heretofore stated, I shall not enter into the digestibility of feeds, except to a very limited extent, for fear of making the subject appear too intricate and difficult of understanding, and confusing to the reader. In calculating the digestibility of feeds, as practically all pigeon feeds have about the same proportion of digestibility, I shall give only the total content of each element, as shown by chemical analysis.

In calculating the nutritive ratio, the percentage of fats (either extract), is multiplied by $2\frac{1}{4}$, and to this product is added the sum of the percentages of nitrogen-free-extract (hereinafter called carbohydrates), and crude fiber, and this total is divided by the percentage of protein, which gives the nutritive ratio.

To illustrate: If a feed stuff contains 15 per cent protein, 4 per cent fats, 70 per cent carbohydrates, and 3 per cent crude fiber. The percentage of fats, 4, multiplied by $2\frac{1}{4}$ gives 9, to which product is added the sum of the percentages of carbo-hydrates and crude fiber. Seventy and 3, gives 82, which, divided by the percentage of protein, 15, gives a nutritive ratio of 1:5.5, nearly, a very fine ratio for pigeons, by the way.

The percentage of fat is multiplied by $2\frac{1}{4}$ times as much nourishment as the same percentage of carbohydrates and crude fiber combined.

Ash

Ash is the material left after the consumption of a feed stuff with fire, and consists chiefly of lime, magnesia, potash, soda, iron, chlorin, and carbonic, sulphuric, and phosphoric acids—substances largely used in the formation of bones. As a rule a ration composed of a variety of feeds contains sufficient ash, or mineral, to supply the body of animals, but this is not altogether true with that of poultry and pigeons. They must be supplied with a good health grit.

Corn is very deficient in ash, and when fed alone to pigeons, it becomes necessary to add ash materials, such as are contained in the specially prepared pigeon health grits, composed, usually, of granite grit, sharp sand, ground shells, salt, charcoal, and other ingredients containing medicinal properties, to assist in grinding the food in the crop, in making egg shell, and in addition thereto to assist in keeping the body in a good, thrifty, healthy condition; and the addition of ash in the materials mentioned is of the utmost importance to pigeons in confinement.

Corn is good feed, as corn is usually the most plentiful of feeds, but, being largely composed of carbohydrates and fats, it cannot be safely fed alone to animals, poultry, or pigeons, because it is deficient in some of the most important elements necessary for the maintenance of the body, as protein and ash.

Protein

Protein in food is that constituent, or nutrient, that forms lean flesh, muscle, ligaments, hair, wool, feathers, most of the internal organs, and other portions of the body, and is most important food to be fed, as well as being the most expensive. It furnishes material for flesh and replaces the wear and tear

of the body. Besides furnishing material for tissue, it also contains carbon and may be burned to form heat and energy, or serve as a source of fats or carbohydrates in the materials fed, containing a deficiency of such nutrients and an excess of protein; but the production of fat, heat, and energy with protein is very expensive. Therefore, as protein substances are always the most expensive feeds, it never pays to feed an excess of protein, such as is contained in cotton seed meal to cattle, beef-scrap to chickens, and peas or scrap peanuts to pigeons. Besides, an excess of protein is really injurious, producing an enlargement of the liver, and a plethoric condition of the system, generally.

For these reasons, feeds very rich in protein should not be fed alone, nor in too great proportions.

Fats and Oils

Fats and oils are used in the animal body as a source of fat and also to furnish heat and energy. Animals require heat to keep the body warm and energy to run the animal mechanism, and do outside work. The beating of the heart, eating, breathing, movement of the intestines, and the muscular movements, such as the head, arms, legs, wings, require energy furnished by the burning, or oxidation of fats, carbohydrates, or protein, one pound of fat in the feed being equivalent to $2\frac{1}{4}$ pounds of carbohydrates.

Value of Fats

Fat ranks next to protein in value as a food element, or nutrient. The more protein and fat a certain class of feed stuff contains, the better the quality, as compared with other feed stuffs of the same class. Peanuts containing 58 per cent protein and fats combined is more valuable than peanuts containing only 48 per cent protein and fats combined. Two feed stuffs of different kinds cannot, however, always be compared on the basis of their protein and fat contents alone, for other factors must be considered.

Crude Fiber

Crude fiber is that part of vegetable feeds that resists the action of acids and alkalis, and consists mainly of the cell walls the woody fiber. It is the most indigestible part of food pro-

ducts. The hays and fodders contain large quantities of crude fiber, while as a rule, seeds, grains, and other concentrated feed stuffs contain only a very small proportion of crude fiber. This element is, therefore, of but little importance in the consideration of feed stuffs for pigeons, their food consisting almost entirely of grains and other concentrated feed stuffs, containing but very small proportion of crude fiber. Hence, crude fiber enters but very little into the consideration of pigeon feeds, but they should contain only small proportions of crude fiber. Barley contains considerable crude fiber, on account of the husk remaining on the seed, and this explains why pigeons do not like barley very much.

Carbohydrates

Nitrogen-free extracts (mostly carbohydrates), meaning feeds free from nitrogen, or protein, are composed of starch, sugar, dextrin (gum), and other substances of a similar nature, and are mostly carbohydrates, containing carbon, hydrogen, and oxygen, and is the most plentiful of all nutrients contained in grains and other feed stuffs suitable for pigeons.

Value of Carbohydrates

Most concentrated feed stuffs, consisting of grains, such as corn, milo maize, kafir, feterita, wheat, buckwheat, rye, barley, millet and rice, are carbohydrates and composed largely of starches, sugars, and dextrin (or gums) and are easily digested and of great advantage to the animal body; while, on the other hand, the nitrogen-free extracts contained in wheat bran, corn bran, corn cobs, peanut hulls, hay, fodder, etc., are composed of other materials than starch, sugar and gums, and are of less value as feed stuffs. Therefore, the carbohydrates, or nitrogen-free extracts of these two kinds of feed stuffs cannot be compared.

Utilization of Foods

When food is digested, there are considerable losses due to undigested food, to losses as gases, and to the work involved in digestion. The remainder represents the net value of the food to the animal or bird. This net food value is the nourishment secured from food, after deducting all losses involved in the process of digestion. This net nutriment must first be used for taking care of the bodily needs, and the excess, if any, can then be used for productive purposes.

The needs of pigeons may be grouped into two classes: (1) tissue building materials, for building or repairing tissue consumed during the life process, and (2) energy forming materials, which may be used for heat and energy, or stored up as fat. Protein is the only constituent of food that can be used to repair animal tissue, to build lean meat. It is required in comparatively small amounts for full grown pigeons, except when they are feeding a pair of big husky squabs, for squabs are rapidly growing tissue, and require large quantities of protein.

Hence, while mature pigeons, not mated or working, that is, raising and feeding their squabs, require only small quantities of protein, yet when raising squabs, the old pair must be fed sufficient quantities of food to sustain animal heat and energy and repair waste tissue in their own bodies and, in addition thereto, to furnish the necessary material to raise a pair of squabs that will in four weeks' time nearly equal the weight of their parents. To enable them to do this, the mated pairs should be fed a ration containing a large proportion of protein, and consequently a narrow nutritive ratio. Hence, practically all grains are more or less deficient in protein. There is an absolute necessity for feeding pigeons a liberal ration of such protein feeds as Canada field peas, scrap peanuts, or soy beans.

Protein is utilized in building the lean meat and assists in making the frame of the squab, while the fats and carbohydrates furnish the fat which keeps its body warm, and furnishes the energy to run its animal mechanism.

TABLE OF FOOD ANALYSIS

From the U. S. Department of Agriculture.

	Water per cent	Ash per cent	Protein per cent	Fibre per cent	Carbo- hydrate per cent	Fat per cent
Buckwheat ...	12.6	2.0	10.0	8.7	64.5	2.2
Cow Peas	11.9	3.4	23.5	3.8	55.7	1.7
Corn	1.9	1.5	10.5	2.1	69.6	5.4
Hemp Seed	9.0	4.5	21.0	18.0	16.9	30.6
Kaffir	12.5	1.5	10.5	2.1	70.5	2.9
Maize	12.0	1.4	11.0	3.0	69.7	2.3
Feterita	11.5	1.3	13.0	2.0	67.4	2.7
Wheat	10.5	1.8	11.9	1.8	71.9	2.1
Millet	12.1	2.8	10.9	8.1	62.6	3.5
Peas	15.1	2.4	23.7	7.9	50.2	0.8
Peanuts	7.5	2.4	27.9	7.0	15.6	39.6
Soy Beans	7.7	5.7	35.4	4.5	21.6	20.3
Sunflower Seed	8.6	2.6	16.3	29.9	21.4	21.2

GRAINS AND SEEDS

The following description of the various grains and seeds fed to pigeons is from the pen of J. W. Williamson, the noted Red Cross Grit man of Glassboro, N. J.:

Kafir Corn

Kafir corn is becoming quite popular with squab raisers, and takes the place of Indian corn to a certain extent. While its properties are not equal to Indian corn, yet at the same time it makes a nice change, and is not a great deal below the rich fats and protein given to Indian corn. One thing in its favor is, it is not as binding as Indian corn, or as loosening to the bowels as wheat. For pigeon food I class it between Indian corn and wheat.

It derives its name from a South African tribe known as Kafirs, not Kaffir, as will be noticed in pigeon literature.

The dictionaries, on the other hand, the Century, for example, gives preference to the single "F." Government officials after carefully looking the matter up also adopted the single "F."

It was first grown in the United States in 1886. There are a great many varieties. The most common seen in the markets are the white and red, which are grown all over the United States where Indian corn is raised. The most of it is raised in the western states, between the Mississippi River and the Rocky Mountains. Texas, Oklahoma, Kansas and Nebraska produce more of it than other states, from which western feed merchants draw their supply. Farmers in the western states state they can grow it with greater success than Indian corn, as it stands the blight better. There is little difference in the nourishing qualities of the white and red, but the latter is most prolific. It is about the size of hemp seed and the shape is round. To our customers raising their own feed, we will cheerfully give full directions how to raise their own Kafir corn, or any other pigeon food grown in this country. Milo Maize and Feterita are about the same as Kafir corn, also Egyptian corn which is grown in California.

Indian Corn

When buying corn the purchaser usually asks for yellow corn, or Poor Man's corn (the white variety), but with these

two grains there is over 273 yellow varieties and 217 of the white.

For feeding animals and birds it does not matter very much which particular variety is used as there is a very little difference in the amount of protein and fats. The yellow varieties, however, are mostly used. The corn used for pigeons should be sifted cracked corn. If the cracked corn is not sifted there is considerable waste as the fine meal will not be eaten by the birds.

Wheat

There are as many varieties of wheat as there are corn, and in purchasing same, you are apt to get one variety one time and another at another, and yet not know the difference.

In fact, it makes no difference as far as feeding is concerned, but a wide difference in being prolific and profitable to the farmer. Under this heading all the varieties will be classed as two, the same as the Kafir corn, red and white, but the latter wheat should not be used as pigeon food regularly. When it is used, mix in other hard grain; also, when using new red wheat, mix in hard grain and watch the squabs. If too loosening to the bowels reduce the amount. Rice will be found very good to feed along with new grain.

Wheat Screenings

These are very good, providing you can secure good screenings. If you can you will find them a most excellent pigeon food; containing besides wheat, various other grains and seed, which are very healthful for pigeons, but avoid poor quality.

Scorched Wheat

This should never be fed to pigeons. At present there seems to be a great many poultry men buying it from the Baltimore market—some dealers in wheat also mix it with good wheat that is being sold as poultry feed. When buying wheat make your purchases from the mill—the farmer, or reliable supply houses.

Peas

There are quite a number of varieties of peas. Pigeons will eat most any variety but Canada peas are by far the best regular food for pigeons. They are a very small pea, being perfectly

round and smooth, of a light yellow color, and always very hard, and can be used shortly after taken from the vine. Pigeons delight in eating them, and bring their squabs along in fine condition. They are grown the same as the ordinary garden pea. They can be grown anywhere the garden peas are grown and even in colder climate than the garden peas will stand. What is known as Cow peas or blackeyed peas is also a splendid pigeon food and often are much cheaper than Canada peas.

Rice

There are over 160 varieties of rice. It is an excellent food for pigeons, to be fed with wheat. It is raised principally in the southern states, where rice can be purchased at a reasonable price. A great deal of it can be used for feed, especially where lots can be bought that have a little chaff in, and not suitable for table use. Pigeons do not take to it at once but after a few meals take to it more readily.

Oats

Oats are very nourishing and preferable even to peas. The price is the main drawback in using them, but when they can be secured at a reasonable price, they should be fed as nothing will bring along squabs as rapidly as hulled oats. Oats that are not hulled should never be fed.

Barley

Those that do use it with hulls on do so merely because it is cheap, but cheap foods should not play a part in squab raising, as it means cheap squabs.

Buckwheat

Buckwheat, either the dark brown, or gray, is used by many squab raisers, but it should not be fed in large quantities, and not much of it in summer, as it is very heating. Mix it with wheat, as if mixed with corn, both grains being very heating will be found to give bad results. It is a good, hard grain and is excellent to mix with white wheat or new red wheat, when the old wheat happens to be scarce.

Hemp

Hemp seed is very fattening and stimulating, and should not be used separately. The best variety is the Russian Hemp. Birds are very fond of it, but should not be fed too much of it. It is excellent during the molting season.

Sunflower Seed

This also should be used the same as hemp; it is even richer in protein than hemp. A small amount goes a great ways. Birds do not like it as readily as they do hemp. It is excellent during the molt and gives a good lustre to the feathers, and is an aid in shedding the old ones.

Millet

Millet is used as a stimulant as birds breed better when a small amount is used with other food. There are a great many varieties. It is used very extensively as human food in Japan, India and China. It is grown all over the United States, the most of it in states west of the Mississippi. It is sown broadcast.

Golden Wonder Millet (termed by some, German Millet), is the variety used mostly in squab production, but all varieties are used.

Rape

Rape seed is a very small round brown seed, somewhat the size of millet. Pigeons are very fond of it. It is used as a dainty.

Lentils and Vetches

Lentils and Vetches are somewhat similar, and grow like peas. The former is mostly used in soups for flavoring. The pods only contain two flat round seeds. The lentils are mostly imported, but some are grown in Arizona and Mexico. They are steep in price and are only used as dainties for squab raising. We seldom use any.

FEEDING BREAD TO PIGEONS

There is little or no advantage to be gained by feeding bread to pigeons except from a standpoint of economy.

Most bakeries, especially the large ones, have stale or unsold

bread which they will sell at a bargain. One or two cents a loaf is the usual price this bread is sold for, but often it can be contracted for at a cheaper rate.

If bread can be secured at about that price it can be fed to an advantage along with the regular feed or grains. Pigeons will not eat bread until they become accustomed to it and then only a limited amount. The best way to feed bread is to slice it up and let the birds pick the soft centers out of each slice, then gather up the pieces, put them in a pan of some kind and pour a little water on to soften the crusts. Let the pans of bread remain in the lofts for about an hour and then remove them. Throw away the uneaten bread as it will sour if left standing, especially in warm weather. Care should be taken to give the birds no more than they will eat and in this way avoid wasting the bread.

At first birds will eat but a very little bread, but the amount can be increased by feeding them when hungry.

If you cannot secure bread for less than grain costs you per pound it is not worth while to feed it. A little bread however, is not a bad thing and can be given pigeons occasionally as a change from a regular diet and in this way prove beneficial even though it costs as much as grain. At any rate, birds should be taught to eat bread and thus prepare for occasions when it might be necessary to feed it to them.

WHAT PIGEON MILK IS

Young squabs under three or four days old receive no grain from their parents. Their food consists of what is known as pigeon milk, a gruel substance which forms in the crops of both the male and female, about 15 or 16 days after they start setting. It takes 17 days for pigeon eggs to hatch and by this time both parents are provided with this so-called pigeon milk with which to feed the squabs. Nature provides this pigeon milk for the reason that very young squabs are too delicate to receive solid food. The male accumulates the gruel or pigeon milk in the crops by the little time he sets on the nest in the middle of each day and the female accumulates it by a longer daily period of setting. When squabs begin to get old enough to receive grain the parents eat smaller grain before feeding their young, and as the squabs grow the parent bird will eat larger grains.

At 10 days old an average squab can receive whole grains of corn with no inconvenience; and right here I might add there is no danger of squabs becoming choked on whole grains or corn for the reason that if the space between the beak is large enough for the grain to enter it will pass into the throat and into their crops without difficulty.

If you have an opportunity some time I would suggest that you take a young squab a week or 10 days old and for your own curiosity put two or three grains of corn into its mouth at once and you will be surprised to see how easily they will slip down its throat.

THE HIGH COST OF FEED

I have received a large number of letters and have been asked often if squabs can be raised profitably since the world war has increased the price of grain so greatly. The answer is, yes, provided one studies the feed situation and takes advantage of the local conditions by feeding more freely of the grain that is the cheapest in his section, but at the same time he must know enough about the values of different seeds and grain to enable him to feed a balanced ration.

Prof. Frank C. Hare writing for the American Pigeon Journal, very ably covers this question. He states, "The present high prices of food stuffs make it imperative for most of us to study the feeding question more thoroughly than under normal price conditions, when we can buy at a reasonable cost almost any mixture of grains we fancy. We have reached the point where we would like to use some of the home grown grains that are cheaper than the imported grains we formerly fed and we want information about compounding a pigeon feed at home that will maintain the production of squabs and the health of breeders."

Bear in mind that pigeons are more or less like children and are apt to eat too much of things that are not the best for them. Too much hemp for instance, is not good for pigeons yet they will eat as much as they can get and hold. But as between corn, wheat and other staple grains their likes and dislikes should be considered when same does not interfere too much with the cost of feed.

CHAPTER VI

GRIT, CHARCOAL, SALT AND WATER

GRIT, SAND AND GRAVEL

There are several different kinds of grit on the market for pigeons composed of various substances and combination of substances. Birds that fly at liberty have an opportunity to pick up many things in the way of sand, gravel, different kinds or dirt, roots, etc., all of which come under the head of grit, or at least they are eaten by birds for that purpose.

The small gravel, as it is commonly called, is eaten and retained in their gizzards as a part of their digestive organs with which the food is ground, while dry sand, clay, roots and even pieces of wood are eaten for the chemical substances and food values contained therein.

These two forms of grit are often confused to the extent that sometimes one is entirely neglected with the idea that the other will take its place. Small gravel or various shapes of small, sharp stones cannot be dispensed with for reasons just stated, while the other substances mentioned can be substituted with various other articles.

There are several kinds of health grit manufactured and sold that contain many of these different articles, including salt, sand, Venetian red, small shells, charcoal, wood pulp and certain kinds of dirt that are relished more or less by pigeons and are probably very good for them, but are often eaten only because the birds crave salt and the so-called health grit is generally salty. In such cases I do not believe the birds are benefited but are injured by having to eat articles they do not want in order to get the salt they crave.

If the fly pen is kept strewn with fine gravel or coarse sand and a supply of it kept inside of the nest room for the young

birds, and to be accessible when snow is on the ground, other forms of grit may not be essential, but I can see no harm in manufactured health grits as long as the birds are furnished with plenty of salt so that they will not be forced to eat these substances in order to get what they want.

Some very successful breeders supply their birds with different kinds of dirt and sand and by a little experimenting they find just which of these articles contain what their birds like.

The soil in different sections of the country contains different chemical properties. You might be surprised to see pigeons eating a certain kind of dirt; if you knew the chemical properties of this certain kind of dirt you would more nearly understand why they eat it. A piece of plowed up sod placed upside down in a fly pen will often furnish the birds a feast in regards to dirt, grass roots and other substances which you might not know was there.

Certain kinds of old plaster and mortar will be eaten with relish by birds that are confined to fly pens.

As a final suggestion, therefore, I would recommend that birds be given plenty of such articles which can be found in most any community and are inexpensive. If they do not eat one they will probably eat another, and anything they eat, even in very small amounts along this line, will prove very beneficial to their health, as nature seems to guide them in this respect.

CHARCOAL

While charcoal is probably not necessary to the life of a pigeon, it is a very healthy product and should be kept constantly before the birds. Charcoal can be secured in most any poultry supply house and comes in three sizes, fine, medium and coarse. The medium size is the best as the birds will not eat the charcoal dust and the coarse size is too large for them to swallow.

Charcoal aids digestion, absorbs the impurities that birds might get in feed or water and contains other health giving properties. It should be kept in small jars in the middle of the nest room or in a grit hopper as described elsewhere under that heading.

Charcoal is an extra good remedy for bowel trouble of different forms and is especially good to feed the old birds when young ones show a looseness of the bowels.

In order to get birds to eat an extra supply of charcoal mix salt with it or pour salt water over the charcoal. Sometimes it is necessary to take other forms of salt away from the birds for a day or two in order to make them eat the salt and charcoal mixture. This is only necessary, however, in extreme cases of bowel trouble. The same charcoal and salt mixture should be kept before the young birds during weaning time and for a few weeks after the old birds have stopped feeding them.

In dry weather it is not a bad plan to throw a few handfuls of charcoal in the fly pens, as birds seem to enjoy picking it up, but this is a wasteful method in wet or bad weather.

OYSTER SHELL

Pigeons require a certain percentage of lime substances to keep them healthy. Their systems require the consumption of lime in certain seasons of the year and under certain conditions more than at other times. The female, however, requires more lime than the male as she needs it for the manufacture of egg shell. Lime for this purpose must be supplied in the form of shells or certain lime stone. Oyster shell is probably the best, most convenient and usually the cheapest lime containing substance and the one that the birds seem to like the best. Clam shells will do, but are not as good. Small sea shells are extra fine.

Do not confuse your oyster shell with grit, however. Birds need grit with which to grind their food, and lime-containing substances do not serve this purpose. Mediumly crushed oyster shell should be kept before the birds at all times. It can generally be secured in three sizes, fine, medium and coarse, at poultry supply houses. The coarse is too large and cannot be swallowed by pigeons. The fine is so small that there is a lot of waste to it as pigeons will not eat the dust. Hence, the medium is the practicable size for pigeons.

The best way to supply oyster shell is in a small receptacle placed in the middle of the nest room or in a grit hopper as is described elsewhere under that head.

SALT

People who are not familiar with the habits of pigeons are surprised to learn that they eat salt, and especially when they

learn that they eat it in quantities. They require a certain amount of salt daily and it should be kept before them at all times. Do not give in loose form to birds that might be hungry for some, as in such cases they are liable to eat too much, which will make them sick or even kill them.

A bird that is getting all the salt it wants, however, will not eat too much even if fed to it in loose form. Some people advocate the feeding of rock salt in large lumps. Personally I do not favor this plan. It is very hard for the birds to get the amount they desire unless the salt is wet and sometimes then they get it in too large quantities. If a rock of salt is placed out in the fly pen in rainy weather, salty water will run into the ground and birds in order to satisfy their appetites will eat the salty dirt which often is foul and very injurious to them.

About the best way to supply salt is to artificially rock table salt, which can be done by first moistening and then baking it in a slow oven just as it comes in the sack. By tying a string around the center of the sack, forcing the salt to each end, it will turn to rock easier. These sacks should be put in the nest rooms just as they are and the birds can get what salt they need by picking right through the cloth. They will soon pick holes through the sack and can then easily get plenty of salt. The cloth will help to hold the lump together and keep it from getting fouled or wasted.

If after dampening the bag of salt and drying it out in the oven it does not seem firm enough, dampen it again a little and bake it some more. The hotter the oven the quicker the results to a degree that it does not burn the sack. Homemade sacks filled with barrel salt will answer the same purpose.

SULPHATE OF IRON

Pigeons require a certain amount of iron in their systems. In some communities there is plenty of iron in the water that they drink, while in others, on account of there being little or no iron in the water, it is necessary to supply same either in the form of Venetian red or by putting old nails or iron in their drinking water to rust.

It is rather difficult to know just what action to take in this matter without knowing the chemical analysis of the water

supply where the birds are kept. To a large extent, therefore, you will have to do your own experimenting and be your own judge as to this, remembering that a little iron is necessary and that the birds will not eat more than they really need, unless forced to do so through thirst or for the want of salt which some breeders mix with Venetian red, thus forcing their birds to eat more of one article than they want in order to get a sufficient amount of the other.

DRINKING WATER FOR PIGEONS

Plenty of fresh water is one of the essentials of successful pigeon raising. One pigeon will drink more water than two or three large hens. The water must be clean, otherwise it is apt to cause canker or other sickness, especially so if birds are confined to fly pens. Pigeons that fly out are not as susceptible to canker as those that are kept penned up. Even clean water that stands in the nest room all night where there are a lot of birds is not good for them to drink, as it will draw a lot of impurities out of the air and is more or less foul. I have visited a large number of squab plants where small drinking fountains are used and invariably found sick birds. Such fountains ought to be filled two or three times a day in order to supply a sufficient amount of fresh water, but better still a more suitable plan of furnishing water supplied. Many plants are so arranged that the water has to be carried some distance and one door after another be opened and closed, going to and from the different units with pails of water. A few hours' work on a water system will save several weeks time in a year. It will furnish fresh water constantly and be better in many ways. Even with a small number of birds a water system is a great advantage.

Young squabs must have plenty of water if they are kept in good shape. In fact, water seems to have as much to do with their putting on lots of fat and growing rapidly as does feed.

In addition to a drinking trough in the fly pen, a drinking trough should be run through the squab house, or along the back of same with openings cut through so that the birds can get to the trough. If running water or city water is accessible one faucet will supply a whole row of units with fresh drinking water, a barrel can be used with a dripping faucet to furnish

a supply of running water constantly. In freezing weather water can be turned on twice or three times a day for a short length of time while all the birds drink, and if it should freeze it can be thawed out by pouring a little hot water in the trough. By making this drinking trough V-shaped the birds can drink with only a small amount of water in the bottom of the trough, while if the trough is made with a flat bottom it will require much more water to make it deep enough for the birds to drink, which will make it freeze easier and also consume much more water.

Open drinking pans or troughs that permit birds to get into or perch on the sides of are not practical for pigeons, as they will foul the water and then drink it, which will make them sick. Drinking fountains that are made with a dent at the bottom are the most practical for pigeons in the absence of a drinking trough, but even if you have only two or three pair of birds it is but little trouble to make a small three-cornered V-shaped drinking trough to run along one side of the nest room, and either arrange faucets with city water or a keg with a faucet that can be filled up once or twice a week and the faucet turned on so it will drip slowly into the trough. This will supply fresh water constantly and save much more trouble and time than will be required to make the trough and arrange the keg. If the trough is placed inside of the nest room it should have a board cover with about two-inch space between the board and the trough which will permit the birds to drink and at the same time prevent them from fouling the water.

By supplying drinking water inside the loft, as well as in the fly pen, it will enable the youngsters on the floor to get plenty to drink before they are old enough to get in the fly pen, which is very essential. It will also enable a female to fly down off her nest any time during the day and get a fresh drink while if the water was out in the fly pen she would not want to leave her nest long enough to get a drink. Then, too, during feeding time the birds often are afraid to spare the time to fly out in the fly pen to get water after they have eaten, so fly to the nest and feed their young and then fly back to get something more to eat before it is all gone, while if the water is handy inside the loft they will invariably take a drink before feeding their squabs, which is the natural and proper way for them to do.

Remember that plenty of good fresh water is one of the necessary things in pigeon raising, and a little time spent in arranging a watering and bathing system will save hours of time in the long run and assure better success.

BATHING

Pigeons of all kinds require a bath once or twice a week. In extremely cold weather they will not bathe except on bright and sunshine days. In spring and fall they should have a bath once a week and during the hottest weather twice or three times a week, depending on the condition of the weather. Pigeons like to bathe on dry, sunny days so they can dry their feathers easily.

Some people say that pigeons bathe every day, but upon investigation they will find that the same bird will not bathe every day, but some birds will bathe one day and others another, and it might seem, therefore, that the majority of the birds in a pen would bathe every day, but such is not the case. To supply a daily bath is not necessary.

Bathing water should not stand before the birds very long after they bathe in it for it will become too foul to drink, and as birds like to drink out in the fly pen or wherever they happen to be, they will drink the foul water which is apt to make them sick. Warm water is also not good for the birds to drink in hot weather, as it is likely to cause sour crop. Warm water in the winter time, however, is good for them. Bath water should be provided regularly once or twice a week according to the season of the year. Between 12 and 2 o'clock are good hours for bathing, provided the sun shines. It is never advisable to supply pigeons with a bath late in the day as they will not have time to dry their feathers before night and are apt to catch cold if they go to roost with wet feathers.

Bathing Troughs

I have found that the average squab raiser loses considerable time carrying water and arranging for baths for birds. The most common plan is to have a bath pan 12 to 16 inches across and four or five inches deep which they set inside of the fly pen and carry water by hand to fill. The pan is invariably not

large enough for many birds to bathe at the same time. They will all try to get in at once and by their fluttering and anxiety to bathe waste a lot of the water and in a few minutes there is not enough left for a bird to bathe in. The water is usually dirty on account of being splashed over on the mud around the pan and birds walking in the mud get their feet muddy and then climb into the pan. Such an arrangement takes lots of work and only furnishes a poor bath.

By a little work a bath trough can be made five inches deep, ten inches wide and several feet long. See article on "How to Build a Bath Trough." The trough should be placed just outside of the fly pen with a gate to open up on bath days. The birds can get to the bath only when the gate is open and with a little work a drinking trough can be made in connection with the bath trough which will permit the birds to drink when the gate is down. If there is more than one unit or fly pen a single trough can be extended along in front of several units and one faucet supplies the water for the entire group of pens.

As a rule considerable time is wasted in opening gates and doors to get into the fly pens or nest houses to furnish water for drinking or bathing purposes, but with this arrangement the drinking and bathing trough is on the outside of the fly pen and is easily accessible for filling, emptying and cleaning.

In the winter time, in a northern climate, an outside trough cannot be used regularly, but on especially warm and sunshine days, when the water is not freezing, the outside bath trough can be filled for an hour or so in the middle of the afternoon and then as soon as the birds have their bath the water can be let out. Birds that have eggs or very small young will not bathe except on extremely hot days. Therefore, a trough as above mentioned would be ample for all the birds that wanted to bathe at one time and will furnish each of them a fresh clean bath.

If city or running water is not available a hose can be attached to a pump for the purpose of filling the bath troughs, or a barrel can be used on a slide either pulled by hand or by a horse. This, of course, depends upon the distance the water is to be carried. Even if you only have a very few pair of squab breeders it will pay to arrange a trough on the outside of the fly pen for bathing purposes. Of course, in such a case a trough

a couple or so feet long would be sufficient. But if it is your intention to eventually increase your flock it would be saving time to make a large trough at the start. These troughs should be made out of galvanized iron, cement or wood. If made of wood, they must be coated inside with asphalt or tar to keep from leaking. If tar is used it should be put on hot, which will make it spread easier. If there are any large cracks or holes in the trough they should be plugged up and a couple of extra coats of tar applied to the holes or cracks and allowed to dry before the trough is given a final coating.

CHAPTER VII

CARE OF PENS, BANDING, NESTING MATERIAL

CARE OF SQUAB PLANT

It is not necessary to keep a pigeon plant clean to an extreme, but each nest should be cleaned out when vacated by squabs or while the squabs are still occupying the nest if they appear to be exceptionally dirty. If the Eggleston double nest system is used it is an easy matter to clean the nest by removing the dirty nest bottom and replacing it with a fresh one. If the nest contains squabs, a small handful of clean nesting material should be put in first and the squabs put on top of it.

It is not a good plan to clean the nests before squabs are two or three weeks old. If they are exceptionally dirty you should change your feed. Each nest room should have a thorough cleaning about once a month, including the sweeping of the floor and sprinkling it with air-slacked lime. If you have a ground, cement or cold floor it is not a bad idea to cover the floor with a mixture of lime and sawdust, mostly sawdust, and just enough lime to make it clean and fresh.

A good plan with a large plant is to do your cleaning by degrees, that is, to clean so many lofts every day, so that the time will not be missed and you will get to each loft every month. Of course, if you have special help for that purpose to come on certain days it would not be practical to have them come more than once or twice a week, which naturally depends upon the size of your plant and the capacity of your help.

Some of the most practical squab breeders never have a general cleaning day. They keep house on the same plan as a good housekeeper by keeping everything in order, cleaning the dirtiest nests as they need them and sweeping out the plant most every day, and in this way they do not miss the time and the plant is always clean and orderly.

CARE OF FLY PENS

The ground in the fly pen should be covered with coarse sand or gravel and then about once a week throw a couple of shovels of fresh sand or fine gravel in each fly pen. This will keep the pens clean and also furnish gravel for the birds to eat. Of course, in time the pens will fill up and will have to be cleaned out. A good cleaning once a year, however, is all that is necessary. The dirt mixed with sand and droppings that come from the bottom of a pigeon fly pen makes the best kind of soil for flowers or gardening. Care should be taken not to get the soil too rich.

Pigeons will not scratch like chickens, hence will not dig up fresh gravel in the fly pen, so the gravel must be freshened up by throwing in a little fresh every few days. This will also keep the pen clean and sanitary.

HOW TO BAND

Small bands or rings are placed on the legs of pigeons as a mark of distinction or identification for several reasons, namely, to keep a record as to the age and parents of a bird; to be able to tell which birds are mated and to be able to tell what pen a bird is out of and to be able to readily distinguish male from female.

The age of the bird is told by the date on what is called the year band. These are small narrow seamless bands and are made so small around that they cannot slip on or off an old bird's foot. They can be put on young birds only in the nest about two to three weeks old. When they are older than three weeks their feet joints are so large seamless bands will not slip on. These bands, however, are large enough to allow plenty of room for the growth of a bird's leg.

On these seamless bands are usually a number which can be recorded for various purposes, such as telling from what parents the bird came, as proof that particular bird won or did not win a prize at a pigeon show, etc. These seamless bands are only necessary for birds that are being raised for show purposes, otherwise inexpensive, open or removable bands will do.

Some breeders band their birds with two bands, one to determine the pen or loft that they came from and the other to

determine mated pairs, and the nest box they occupy. By using different color bands with numbers thereon one band on each bird is sufficient for both these purposes.

There are several systems of numbering and color banding, but I think the following plan is easiest to keep track of and the most serviceable: For instance, if you have 30 pairs of birds in a nest room, select three color bands for that particular nest room. For example, white, pink and light blue, with numbers arranged from one to ten in each color. Band the males on the right leg and the females on the left, using the same number and color for each pair. All numbers come in duplicates so as to supply the same number and color for the male as for the female. Make a record on or over the door of the nest room of the band colors and numbers to be used for that pen. That is, write "White 1-10," "Pink 1-10," "Light Blue, 1-10." In the next nest room use "red," "yellow," and "green." In the next, "orange," "cherry," "dark blue," etc.

There are two objects in using three colors for each pen. First, if you desire to find male number 6 with white band your number of birds in the pen that are likely to be the bird that you want are reduced to 9, as there are only 9 other cocks in the pen with white bands, while if 30 cocks in the pen had white bands it would be three times as difficult to find the desired bird. Second, by using bands of different colors you can keep your numbers to a small denomination, which will also render you service in picking out special birds, for the reason that single numbers, such as 1, 4, 6, etc., are much larger and more easy to see than double numbers, such as 13, 15, 16, etc., and as a rule you will find it is hard to tell the first or second figure where numbers in two figures are used. You can see one figure but will not know what the second figure is as it is partly on the other side of the bird's leg, or you can see the second figure and cannot tell what the first figure is. Another thing, if a number gets a little dirty it is difficult to distinguish 13 from 15, 16, 18 or 19, or to tell the difference between 23, 25, 26, 28 or 29. These numbers look more or less alike when part of them are covered up with dirt, but with a large single figure on a band the number can be readily told clear across the nest room or fly pen.

The plan of having three colors to each pen uses up the various colors very fast, which is about the only objection to this plan, but as the only advantage to be gained by having different colors for different pens is to be able to tell what pen a bird came from in case it should get loose. I do not consider that offsets the advantage of the three colors to the pen system.

Besides, the pen a bird comes from can generally be told when a bird gets out as it will invariably be found close to the pen that it came from, and even with a large plant, birds banded with white, pink or dark blue, for instance, would be quite a ways from other birds banded with one of these colors. Then if there is any doubt a search could be made to see if the bird with that band number and color and of the same sex was in or missing from a pen.

About the best way to band birds according to pairs is to wait until they start work. A female will be found on the nest early in the morning or late in the afternoon except when she is laying when she might be found on the nest any time. The male will be found on the nest during the middle of the day.

When a bird is banded, mark the number of its band on the nest box in a conspicuous place. With a letter signify the color of the band after the number, "w," for white, "p" for pink, and "b" for blue, etc. Then, if it is a female, make a dash following the letter, and if a male that is banded, signify the same by a straight up and down mark after the number. When both birds have been banded, the dash and straight up and down mark will form a cross.

By this method you can look in the nest room and see at a glance which birds are banded, which are not, and if a female is banded and you are there in the morning you will know that it is a female by the dash following the number and letter and it will not be necessary to bother the bird or catch it to see which leg it is banded on. The same is true if a male is on the nest, and your marking shows that male has been banded.

When one bird of a pair is banded take the other corresponding band and hang it on a wire in front of the nest room ready for use. Then you can tell by looking at the bands on the wire just how many birds yet unbanded.

With my nest room plan there is an aisle between the nest room and fly pen and a wire partition between the nest room

and aisle and by hanging the band on the wire on the same side that the nest is on it is easy to find the band for any unbanded bird.

A good plan is to tack a small card on the outer edge of each nest on which to record band numbers of the old birds for that nest and the date and number of squabs that are taken out of each nest. An ordinary express tag makes a good card for this purpose.

A better plan is to record nothing on the card at the nest box but the band number, color and the cross as explained above, then have a card or a little day book hung outside of the door of each nest room and record on same the band number and band color of each pair in that nest room. Immediately after the number make a monthly record of the number of squabs each pair produces.

After a number of birds have been put into a nest room and each pair is banded for that nest room, the male on the right leg and the female on the left, a card tacked at the side and the numbers and colors of each band are recorded on the edges of the nest, then all of the unmated birds in that nest room should be removed and placed in with unmated birds for the purpose of securing mates, or if you are positive as to the sex of the birds removed it is a good plan to shut them up in pairs to mate as many males with as many females separately as needed to fill out the allotment for the nest room.

For instance, if 60 birds were put into a nest room to start with, 40 birds have mated up and are banded, the remaining 20 birds should be removed from that nest room and either placed in a pen with other unmated birds out of which can be selected pairs as fast as they mate up, banded and put back in the original nest room, or 10 females may be shut up with 10 males in 10 separate mating coops and as fast as they mate up be banded and put back in the original nest room. The latter plan would be a little faster than to merely put them into a pen with other unmated birds as two pigeons will mate up quicker in a mating pen than any other way.

If a bird dies its mate should be located and taken out and mated up with another bird, then banded with the same bands and put back in the same nest room. If a pair is taken out for

any reason their leg bands should be removed from their legs and saved to be put on another pair for that pen.

NESTING MATERIAL

Pigeons build their own nests out of small twigs, coarse hay, straw, etc. Tobacco stems cut up into short lengths is the best material. All that is necessary is to put the nesting material within reach of the birds, and they will carry it to their nests one straw at a time. You cannot help them any or hurry them along by putting the material in the nest for them as they prefer to build their own nests.

The value of tobacco stems for nesting material cannot be overestimated as the straws are about the right size, round and pliable and are liked by the birds. Added to these qualities the tobacco stems will tend to keep away lice and to keep the birds healthy.

Tobacco stems can be secured from cigar factories at a small cost, generally 50 to 75 cents a hundred.

The short, curly Havana stems are the best, but if these cannot be secured the large, coarse kind will do if cut up into lengths 8 or 10 inches long. A good way to cut them up is with a corn knife, hand axe or hatchet, using a block of wood to chop them on. They can be cut up with a heavy pair of scissors, but this is a rather slow process.

Alfalfa hay makes a splendid material for nests as it is short, round and pliable. Straw does not make very good nesting if it is used alone as it is so straight and flat that the birds cannot weave it into a nest of any shape, but birds like a little straw along with other material to make a soft lining out of. Pine needles are recommended by some as good nest material and are also claimed to keep lice away. Having never personally used pine needles, I cannot give any definite information regarding them.

Birds like an assortment of material for nest making, therefore, where it is convenient it is well to give them some of several materials, such as prairie and alfalfa hay, wheat or oat straw, and tobacco stems.

This will not only please the birds, but will also save the tobacco stems and yet give them enough to act as lice preventative.

CHAPTER VIII

ENEMIES OF THE SQUAB PLANT

LICE, MITES AND OTHER VERMIN

The same lice or mites that get on chickens will also bother pigeons. Then there is a pigeon louse and a feather louse, but if pigeons are kept in a clean place, that is whitewashed two or three times a year, and tobacco stems are used for nesting material they will not be bothered by lice or vermin of any kind. Whitewash and lime is not only a good preventative, but it will destroy the lice if the house and nest are sprayed with it.

The feather louse as a rule is harmless and does not bother the birds except certain times of the year.

Mites that get in the nest and on the eggs and young ones are probably the most destructive and birds are apt to be bothered with mites some time before detecting it for the reason that you cannot see them on the old birds like lice, but if you examine your squabs you can find the mites under their wings and, as a rule, on the side of the head.

If mites are discovered on small squabs the best thing to do is to change the nests, sprinkle the squabs with Lambert's Death to Lice or Persian Insect Powder. The former, however, is much more economical and just as effective. It can be obtained from almost any drug store. Dip your nest bottoms in crude oil and all vermin will stay out of the nests for a year or more.

A good plan is to put a small amount of crude carbolic acid and a small amount of crude petroleum into the whitewash before using. By sprinkling dry lime on the floor of the nest room the birds will fly from place to place, scatter the lime all over the room, in fact, every little crevice will be filled with lime dust. Air slacked lime is the best to use, as it will not burn the pigeons' feet if they get it on them and then get their feet wet in any way. Yet it is just as strong and powerful as the other kind.

A little sulphur in the bathing water when birds are lousy is not a bad plan, provided you can get your birds to bathe in it, but the easiest and surest way is to keep the house well white-washed and to use tobacco stems for nesting material. When they are not convenient, or obtainable, an ordinary moth ball dropped in the corner of each nest box acts as good lice preventive.

Pigeons bathe regularly and can keep themselves clean, which is one reason why they are not bothered very much with lice.

Chicken lice do not seem to stay on pigeons very long at a time. They are very annoying and destructive, however, during the period that they stay and will cause pigeons to leave their nests and often make them slow up in their work, besides causing the squabs to be small and poor. So it is well to guard against them even though they are not a permanent nuisance.

Should it be your misfortune to have your birds in or near an old chicken house, or one that is alive with lice or mites, and should these pests get a hold on your squab plant to such an extent that a mild treatment does not seem to do the work, you can clean the entire place of lice and mites by one gigantic effort if you proceed as follows:

First take out and burn all the unused nest material, feathers and dirt from your squab house and the surrounding yard, then start in with your nest room. Dip each bird with a warm solution of sheep dip, which is a coal tar product and can be purchased at almost any drug store. To dip the birds use a good size bucket with sufficient enough liquid to enable you to immerse the bird completely under except its head. Care should be taken not to get any in its eyes. As a preventative it is not a bad plan to grease the bird around the eyes with a little vaseline or tallow. The dip should be diluted with warm water to about one-half the strength required by the directions.

When dipping a bird churn it up and down a time or two in the liquid so that it will get completely wet clear to the skin, otherwise the feathers, being oily, the dip will not take hold. After the birds are dipped put them out in the fly pen to dry, providing it is a warm day. They should not be dipped except on warm days so that they will dry quickly.

If the bottom of the fly pen is inclined to be dirty it is best to lay down a few boards for the birds to sit on while drying.

They will climb on the boards without help. Treat each old bird in this manner and put them all out in the fly pen, then have a bucket of whitewash ready and whitewash the inside of the nest room while the birds are drying. Nests with any young or eggs can be taken out during this operation.

In order to keep from getting eggs or squabs mixed, and so that you may know the exact nest they belong in, it is well to provide some boxes to put them in, numbering the boxes to correspond with the nest numbers the squabs came from. Young squabs that cannot walk will naturally be more easily cared for than those that are old enough to walk and will not stay where you put them.

I would advise that the old nest material be destroyed and be replaced with nests made of fresh material, first covering the bottom of the nests with air-slacked lime. A good plan is to dip each nest bottom, providing your nests are of the removable type, as they should be.

After you have whitewashed the nest room, paint a strip six or eight inches wide clear around the nest room next to the floor with crude petroleum or coal tar thinned with gasoline. You can use an ordinary paint brush for this. Then shut the doors and windows tight and spray each nest with naphtha or formaldehyde, the latter being the best and can be obtained from almost any fair size drug store.

You should tie a sponge or wet cloth over your mouth and nose before spraying, as the formaldehyde is apt to make you sick if you breathe too much of it. The spraying can be done with an ordinary insect sprayer or almost any kind of an atomizer, the larger the better.

Leave the house closed up for twenty or thirty minutes, then open up and let it air out before the birds are permitted to go back, otherwise the fumes of the formaldehyde will make them deathly sick and will even cause them to throw up their feed. As soon as one nest room is completed, proceed to another until the entire plant has been covered.

As previously stated, this is quite a severe method, but it will do the work and thoroughly rid you of lice and mites if you cannot get rid of them any other way. If this operation is performed on a warm day it will not be necessary to keep the eggs or squabs warm except to throw a light cloth over them

and keep them out of the air. Be sure and allow birds you dip enough time to dry off thoroughly before night. The sheep dip will not dry as quickly as water and will give them a greasy, dirty appearance for some time afterwards, but they will get rid of it, however, by bathing in due course of time.

If you have a large plant naturally it will require several days to get through as you cannot work early in the morning or late in the afternoon. But once you go through the plant as directed you can feel certain that you have no more lice or mites to contend with.

CATS, RATS AND MICE

Cats will eat squabs but can be kept out of the plant with little trouble. The birds should be wired in, and anything that will keep a pigeon in, will keep a cat out. The presence of cats around the plant is an advantage as an enemy to rats and mice, provided cats are kept out of the nest rooms and fly pens. Cats that have been raised from kittens in a squab plant are not liable to bother the squabs or breeders, especially so if they are fed regularly.

Rats are very destructive and their elimination is a problem that all squab breeders have to solve. If a squab house has a floor high enough off the ground to permit cats or dogs to get under, this will prevent rats from accumulating under the floors. If no floor is used, a layer of cinders several inches or a foot thick can be put down in the bottom of a squab house and then dirt or clay packed on top. Rats cannot bore in cinders successfully, the sharp edges of the cinders are too much for them.

About the best plan is to dig a trench a few inches wide and 18 inches deep around the outer edge of the squab house. Then nail a one-inch mesh wire to the lower edge of the squab house, allowing the wire to extend down into the trench. Fill the trench up with dirt and you have Mr. Rat barred from your place, provided there are no holes above the ground that a rat can enter through.

This plan can be used with or without a floor, and with such a plan it is not necessary to build a squab house up off the ground, which will permit you to bank up dirt around your plant in the winter time to keep out the cold. Cold floors are very bad for pigeons.

Wire or other traps can be used successfully for catching rats or even poison can be resorted to if there are no cats and dogs to eat it or the poisoned rats.

While mice do not eat squabs or bother the eggs, they are very annoying around a squab plant, are great consumers of feed, and bother the pigeons more or less by getting into their nests.

The feed supply should be kept in a mouse-proof bin or receptacle; old boxes, buckets, barrels or other articles should be kept off the floor in a manner that will not permit mice hiding under or behind them.

One of the best mouse traps I know of is a small box, partly filled with cotton, feathers, shavings, or paper, and placed on the floor of the squab room with a small hole in the bottom corner, big enough to allow mice to pass in and out. If there are any mice around, they will soon adopt the box for their home; the box can be carried out every few days and opened over a half tub of water; the mice will jump out into the tub and drown. Then the box can be put back into the nesting room for another catch. The longer such boxes and their contents are used, the more readily will the mice occupy them.

Every time a rat or mouse hole is found in your squab house, you should nail a piece of tin or a thick block over it, which will prevent them from getting a start in your plant.

THIEVES AND BAD BOYS

The element of danger from thieves or bad boys bothering pigeons can in many ways be guarded against. A high fence along the exposed sides of the plant, an electric lighting system that can be turned on from the residence and expose the presence of any one in the plant at night, or the presence of a good watch dog, are good precautions. The possibility of being bothered by boys or thieves is not great, for the reason that there is no ready local market or immediate demand for grown pigeons and they cannot therefore dispose of them promptly like chickens. The percentage of saleable squabs in the nests is so small that the danger of their being stolen is remote.

SPARROWS, HAWKS AND OWLS

Sparrows have become so numerous throughout the country that is necessary to guard against them, otherwise they will

consume an enormous amount of feed. They are so bold, cunning and daring that they will find and enter a remote opening, fly right into a nest room and almost take possession of same.

Inch mesh wire is the best protection against sparrows. In this way they can be kept out of the fly pens and therefore out of the squab house.

Hawks and owls do not bother pigeons if they are kept in fly pens, for the reason that they cannot get through the wire, but hawks often prey upon pigeons if they fly out. They are more apt to catch the young birds that are just learning to fly, but often dart down and pick up an old one.

Owls will only bother pigeons in the country and not then unless the birds occupy a barn loft or some place where the owls can conceal themselves in the day time and prey upon the birds at night.

As a whole, however, there is little to fear from hawks and owls, as it is harder to catch old birds and young ones are not usually in a place where they can get them.

If sparrows bother to any great extent they can be disposed of double quick by soaking wheat or other small grain in alcohol for a couple of hours or over night, then scatter the wheat out where the sparrows can eat it. When they do, it will make them drunk and they can be picked up by the basket full if there are that many.

The wheat should be placed somewhere so that the pigeons or chickens, if you have any, cannot get to it as it will affect them the same way and if they get too much it will kill them. It takes ten or fifteen minutes for a sparrow to topple over after eating the soaked grain, but it will not get far away as it takes effect in a short time.

CHAPTER IX

MOULTING AND COLOR BREEDING

MOULTING

Like all other feathered animals, pigeons moult (shed their feathers, once a year. They commence to moult in the summer and finish getting their new feathers before cold weather, and thus nature has provided a way for them to keep cool in hot weather and warm in cold weather, and at the same time be annually supplied with a new suit.

During the moulting process a bird will shed every feather, but only a few at a time, so at all times they are partly covered with feathers and have enough so they can fly. At the height of the moulting period, however, it is sometimes difficult for some birds to fly, especially if they have not moulted out evenly, which is sometimes the case, caused by poor condition or insufficient feed of the proper feather producing value.

Birds require food during the moulting period with a lot of oil in it. Sunflower seed, millet, hemp or peanuts are all good feather producing feed, sunflower seed being the best for the purpose, millet next.

Mr. Mushet says: "Probably there is no period in the life of the pigeon that requires more attention than during the time of moulting, not only on account of the breaking down of the muscular tissues, owing to natural conditions, but also the drain on their vitality incidental to the production of a complete covering of new feathers.

Too great care cannot be given birds during this trying ordeal. At this time the birds are more than ever subject to ailments and while they may have gotten bravely over their moultings, many troubles which are apparent later may be traced directly to adverse conditions, which, under ordinary circumstances, would be of little importance."

To sum up the matter briefly, I would suggest that all lofts be thoroughly cleaned before moulting and disinfected with

sheep dip or some other germicide, pigeons be kept free from draughts and made as comfortable as conditions will allow. Bathing should be provided for at least twice a week, care being taken that bath is emptied to prevent the pigeons drinking foul water.

Breeding during the moulting period should be discouraged as much as possible, and no squabs should be raised for breeders until the moulting season is entirely over, as the energies of the parent birds are centered on recuperating their natural activity and not on feeding their offspring. Observation exercised with good common sense on the part of the individual breeder will accomplish a great deal at this critical period, as the different breeds of pigeons have characteristics peculiar to themselves and what might be applied to one loft might not be to another.

EXPLANATION OF FEATHER COLORING

It is generally believed by men who have made a study of the origin of the different kinds or species of pigeons that they all originally came from the ancient Rock Pigeon which was of a bluish gray in color with two black bars or stripes across the lower end of each wing, very much the same in color as the blue-barred Homer of today. The most positive proof of this theory is that the off-colored birds of any breed will show a tendency in color to "Blue Bars." The same is true when the different breeds are crossed for sooner or later the offspring drifts toward the color design of the Old Rock pigeon. In fact, in all colors and varieties of pigeons there is a characteristic marking of the feathers, such as bars on the wings and dark tips on the end of their tail feathers and the various color schemes built up from a bluish gray. That strongly supports the idea that all pigeons came from a common variety. This is also borne out by the habits and characteristics of all pigeons which are in a general way the same with all varieties. (See article on "Characteristics of Different Varieties.") Taking the Blue Bars as a feather color basis we can easily trace this bluish gray through the color scheme of all pigeons.

The same fundamental principles govern the coloring in pigeon feathers that govern the color of all other animals or fowls.

That is to say, all colors are made from the three primary colors. Red, blue and yellow, with the negative white and the positive black, which gives various combinations of five so-called colors. The bluish gray pigeon color is more of a lead color than a blue and lead color is made by a mixture of black and white. A number of blue barred or gray pigeons with black bars put to themselves will sooner or later produce some all white and all black birds. The white birds are those that are void of pigment, hence negative in color or white. The black birds are the opposite with an oversupply of pigment which gives their feather coloring an extreme opaque appearance, hence look black, generally a muddy, bluish-black. By careful examination of the gray of the supposed original pigeon color it will be found to contain slight variations. Some birds will show slight reddish or purple cast, others have a tendency towards yellow or green. The various slight differences in shades are not noticeable unless one makes a special study of color and understands the principles of color and color combinations. You no doubt understand that blue and red make purple, red and yellow make orange and blue and yellow make green. Now the reason we have no green or purple pigeons is because the bluish color of pigeons is a combination of black and white and is, in fact, lead color or gray and not really blue, hence without blue there is no green as it takes blue and yellow to make green and without blue there is no purple as it takes blue and red to make purple.

With lead color or gray substituted for blue we can get a slight purple or green cast, but no green or purple. Now, going back to explain the possibilities of the various colors of pigeons other than the supposed original color, the feather coloring of all pigeons shows the presence of more or less red and yellow, by selecting those that show the most red and breeding from them and again selecting the reddest of their offspring, pigeons of different shades of reddish feathers have been produced, but as yet it has not been possible to produce bright red or bright yellow birds and probably never will on account of the predominating colors of a pigeon being gray (if you will permit me to call gray a color) and as a combination of black and white makes a lead color and the presence of this lead color which cannot be entirely eliminated, gives the red or yellow a muddy look and prevents bright red or bright yellow. The various

color combinations of pigeons, therefore, are, first, lead color (a combination of black and white with a little red or yellow cast); second, black with generally enough red or yellow to make a muddy black. Third, white; fourth, same colors with red predominating; fifth, the same colors with yellow predominating and sixth, a combination of one or more of these color schemes. The presence of black, which generally shows first in the form of two black bars on the wings, and the presence of white, which generally shows first in the larger wing feathers, making the wings "white tipped," are the most common feather markings and those that are the most difficult to eliminate.

Such colors as silver and dun are chance or negative colors, the same as is yellow that appears as the result of certain color tendency that shows up with the combining of red and yellow with lead color with more or less black or white, but there are no green or purple shades because both green and purple requires blue and there is no blue in the feather coloring of pigeons. The bluish color that we see being the result of a mixture of black and white.

HOW TO BREED YELLOW, DUN OR SILVER COLORED PIGEONS

Since writing the first edition of this book the author has carefully studied the question of how to breed yellow, dun or silver colored pigeons that will reproduce these colors and has made conclusive experiments until he has found a positive rule in securing birds in yellow, dun or silvered colors with assured results.

To start with let me explain that yellow in pigeons is the negative color to red, dun is the negative color to black and silver the negative to blue. To make this more plain, I will designate red, black and blue as positive colors and yellow, dun and silver as negative colors.

Now and then will be found a pair of red pigeons that will produce occasionally, a yellow offspring which is always a female. Now and then will be found a pair of pure black pigeons which will produce occasionally, a dun offspring which is always a female and now and then will be found a pair of

all blue pigeons that, occasionally will produce a silver offspring which is always a female.

It has been a great question in the minds of many who notice these irregularities in colors as to how to produce a male in the negative color, viz.: yellow, dun or silver inasmuch as these negative colored birds that spring from the positive colors are always females.

If you will follow me closely, I will explain how to breed negative colored males. First locate the parents, whether they be red, black or blue that produce the yellow, dun or silver colored females. Separate these parents and remate the male of that mating with a negative colored bird of its respective color, viz.: if it is a red cock remate it with a yellow female; a black cock with a dun female or a blue cock with a silver female. It will be all right to mate the positive colored cock with its negative colored female offspring, but just as well to mate the cock with the negative colored female of no relation.

Before I go further and to make it more simple, we will leave off the black and dun and blue and silver combinations and make the illustration wholly from the red and yellow combination, the black and dun, and blue and silver, being identical with the red and yellow. What applies to one will apply to the other. Explaining a little more, regarding the positive red cock that occasionally produces a yellow female, such cocks are not pure red positive colors, although they cannot be distinguished in color from pure positive red cocks. There is something there that one cannot see. They are impure bred and when mated with a negative or yellow female the offspring of that mating will be on an average one-fourth impure red cocks, one-fourth yellow cocks, and one-fourth pure red hens and one-fourth yellow hens.

The offspring of the impure red male youngster will produce the same as the offspring as its impure red male father regardless of whether it is mated to a red hen or a yellow hen and the male offspring will be red if it is mated to a red hen and yellow if it is mated to a yellow hen. The next generation or reproduction will continue as above, therefore one can secure yellow males out of every four on an average, which will produce yellow youngsters of both sex if mated to yellow females by mating an impure red cock to a yellow hen and a red male

of that mating will reproduce one-fourth yellow cocks the same as their fathers if mated to yellow females and the yellow cocks will reproduce both males and females if mated to yellow males. On the other hand, the red females whether from impure red cocks mated to red females or from yellow cocks mated to red females will always be color pure, hence the color of any red female's offspring will not be influenced by their yellow or red parentage.

What is true of red and yellow matings as explained above, is also true of the black and dun matings and blue and silver matings. This applies to all breeds of pigeons and all colors and all combinations of colors, also to birds of any of these colors mixed with white in large or small proportions.

Pure red males, if mated to pure red hens will produce pure red males and females which in turn will produce pure red offsprings of both sex. Pure red males mated to yellow females will produce one-half pure red males, one-fourth pure red females and one-fourth yellow females, therefore it is possible to produce yellow males from pure red males and it is impossible to produce dun males from pure black males or silver males from pure blue males.

By studying the following diagrams, one will be able to more closely comprehend the intricate explanations made above and more readily grasp the results of certain matings.

The following table shows how to produce impure red males that will, when mated with yellow females, reproduce yellow mates an average of one out of every four.

Pigeons will not produce with a limited number of hatchings exactly according to this table, but in time they will average exactly as the table shows:

Pure Red Male	}	Produce	{	Impure Red Male
and				Impure Red Male
Yellow Female				Red Female
				Red Female
Yellow Male	}	Produce	{	Impure Red Male
and				Impure Red Male
Red Female				Yellow Female
				Yellow Female

Impure Red Male	}	Produce	{	Impure Red Male	
and				Yellow Male	
Yellow Female				Red Female	
			{	Yellow Female	
Impure Red Male	}	Produce		Impure Red Male	
and				Impure Red Male	
Red Female				Red Female	
			{	Yellow Female	
Yellow Male	}	Produce		Yellow Male	
and				Yellow Male	
Yellow Female				Yellow Female	
			{	Yellow Female	

It will be noted that it takes an impure male mated with a yellow female to produce yellow males and that an impure male can be produced from the mating of pure red males to yellow females or by mating yellow males to red females, but when once a yellow male is produced and mated to a yellow female, the offspring will all be yellow. The offspring as shown in the tables will not always prove in the same ratio of one to four, but they will average that proportion.

What is true of Red and Yellow combinations is also true with Black and Dun and Blue and Silver combinations.

INBREEDING

The chance of inbreeding and the danger of harm from it is not as great as most people think. To repeatedly mate brother with sister, mother with son or father with daughter would bring bad results, but an occasional mating of this kind, as might occur by chance, will make little or no difference and show no ill effect.

The percentage of chance of close inbreeding is so small that it does not pay to guard against it. As an example, with as few as six pairs to start a flock with, there would be but one chance in five for a brother to mate with sister out of the first lot of youngsters and considerably less than that as the flock increased.

The chance for a parent bird to mate with its daughter or son, would be less, as the size of the flock would be much larger by the time an old bird would probably die and make it necessary for an old bird to get a new mate.

The fact that a female will mate up about two weeks younger on an average, than a male, reduces the chance for brother to mate with sister. This is caused by the habits of birds more than by the age that male and female mate. A male will generally get a home or a nesting place before he gets a mate. In fact, this is generally the way he gets a mate (see article on mating), while a female will mate up with some older male that has a home to take her to about the time her nest brother is thinking of getting a home.

CHAPTER X

PIGEON DISEASES AND REMEDIES

GENERAL REMARKS

On this subject no one seems to be very capable of advising except as to chief remedies and that birds should be handled in such a way as to keep them healthy, thus preventing disease and making medicine unnecessary.

There are various common diseases that pigeons are more or less afflicted with and some of these are harmless, while others prove fatal. Later on I will describe some simple remedies that I have found to be fairly effective, but cannot vouch for them except in a small way.

Pigeons are just like people and pigeon doctors are just like all other doctors. One will have one theory and a remedy for a certain disease, and another something entirely different. If a person gets a headache or stomach trouble, one doctor will prescribe certain medicines. Another doctor will tell you that you need electrical treatments, another that a change of climate is necessary or a visit to certain springs, or forms of violent exercise or dieting will bring about certain results, while another doctor might want to massage it out of you and still another pronounce you incurable. All of these various characteristics are found in pigeon doctors, so you can see what a person would be up against trying to follow the various remedies offered by people with different experiences and ideas. To this I might add that no one seems to understand the delicate make-up of a pigeon and its anatomy as some of our leading physicians do the human anatomy. Then, too, it is hard to proportion remedies for such a small being as a pigeon and hard to detect the results.

You cannot feel a pigeon's pulse or take its temperature successfully or ask it to describe its ailments. So, as a whole,

doctoring pigeons is not a successful undertaking and the best we can do with any degree of success is to, first, keep pigeons well by giving them proper food and water and other supplies and, second, if they do get sick, take a chance on some simple remedy that cannot harm them even though it might not do them much good.

The following are a few symptoms and simple remedies:

ROUP AND COLDS

During rain and cold weather and certain seasons of the year, and especially in the sections of the country where there is more or less dampness, there is danger of pigeons contracting colds and roup.

The best remedy for any disease is a preventative and this is especially true with colds and roup. The same thing that will cause birds to catch cold will cause them to catch more cold if the cause is not removed. All the medicine in the world will not cure a bird in the presence of drafts, damp lofts or other unfavorable conditions. As with people, plenty of fresh air is necessary, but the admittance of air and the nest box arrangement must be so that birds will not be exposed to drafts and can keep warm and dry.

One of the first things to do for pigeons with a bad cold is to give them a slight physic. A tablespoonful of Epsom salt to a gallon of water given the birds the first thing in the morning is about the best way to give physic. All other water must be kept from them, otherwise they will not drink the water containing the salts. Next see that there are no drafts in the loft, especially near the floor. If the floor is cold you will find the air circulation is wrong or that the wind blows under the house. Cold floors are very bad for pigeons. For this reason I do not favor building the house up off the ground. A thorough cleaning out of a nest room, using plenty of dry lime and dry nesting material, a change in the air regulation, plenty of fresh water for the birds to drink, and a change in their feed will break up colds or roup nine times out of ten. For severe cases give the bird a pinch of dry sulphur twice a day and place them in a warm, airy place, away from the other birds. There are other remedies that no doubt have lots of merit, but doctoring pigeons

is hard and uncertain as to results. Therefore, preventatives are better than cures.

The time to start remedies is at the first sign of a cold which can be detected by wheezing or hard breathing. It is then time to change the air circulation, look out for drafts, wet, damp rooms or cold floors and remedy same.

"GOING LIGHT"

When birds are getting thin, they invariably are not receiving a sufficient amount of good food, and birds that are especially weak and thin can be best doctored by putting them in a place by themselves, where they can get an extra amount of choice grain, charcoal, grit, oyster shell, and plenty of fresh water.

A dose of Epsom salts, used at the ratio of about one tablespoonful to a gallon of water is a good remedy in case birds are in a rundown condition. Epsom salts is also a good bowel remedy if given not oftener than once a week. A small dose will generally give the bird that will not eat an appetite, giving them water with salts in, as described above. In order to get birds to drink such water, however, it is generally necessary to take all the water away from them in the afternoon and then give them water with salts in the next morning.

Birds often become sick or "under the weather" during the moulting season. Hemp or sunflower seeds are good feather producers, and a little fed along with the morning feed is a good idea. I for one do not believe that there is such a disease as going light. That some pigeons may get poor, run down and become weak is not denied, for that is a fact, but that there is a certain ailment known as "going light" is questionable.

Pigeons are very healthy, and the percentage of deaths from disease is extremely small as compared with chickens.

If a person takes a bad cold, which runs into bronchial trouble, asthma, or tuberculosis; or, for instance, has poor digestive organs, we generally know the cause of the poor health and call it by its proper name; whereas, if a pigeon suffers from any of these troubles we say it is "going light."

Bad or impure feed, dirty and impure water, damp lofts and unsanitary conditions, will all be instrumental for a bird losing its appetite, and as a result "go light." If a bird gets a sour

crop, a case of constipation, running off of the bowels, an inactive liver, a clogged gizzard, or even a severe cold, it will eat but little, if anything, and naturally "go light." Hence a certain remedy to cure "going light" would not suffice. That which would be good for a cold or a soup crop might not be beneficial for some of the other ailments mentioned.

Before one can intelligently doctor a bird, he must first diagnose its troubles or at least form a conclusion as to the cause.

The old saying about an ounce of prevention being worth a pound of cure especially applies in the pigeon business. The proper care and attention and a simple remedy given at the first sign of sickness will keep pigeons in the best of condition.

Birds that get sick should be put in a pen by themselves, where they will not be bothered by the aggressive cocks in the loft. Such a place should afford plenty of light and fresh air (no draught), be warm in winter and cool in summer. They should be provided daily with fresh water, grit, salt, charcoal, oyster shell, and have plenty of appetizing food.

A good plan is to apply the same general principle of treatment to a pigeon as one would to a person, using one's best judgment as to how much treatment is practical and profitable, and basing opinion upon knowledge of what can be accomplished.

The most common cause for "going light" is lack of nourishment. The pigeons actually are starving for want of nourishing grain like Canada peas and pigeon peanuts. "Going light" is also seen in females driven too hard by the males. Such females should be removed from the breeding pen and rested. There is no germ cause for "going light."

SORE EYES

The principal cause of sore eyes among pigeons is colds, due to dampness or overhead drafts. The symptoms of sore eyes caused from colds are: First, swollen eyelids, followed by a slight discharge and gummed up eyelids to the extent of total closing of the eye. To cure sore eyes caused by colds, cure the cold by removing the cause, then nature will take its course, provided the birds are accorded the proper treatment, such as plenty of fresh air, good wholesome feed and pure water. The

first thing in sore eyes, colds, or most any other ailment for that matter, is to see that bird's bowels are active, yet not loose. This can be regulated by the feed given, add a little more wheat to your feed mixture if birds seem to be bound up, and if the bowels are too loose reduce the portion of wheat. Charcoal is also a good bowel regulator, especially if the bowels are too loose. If the eye is glued shut, soak the lids loose by applying warm water, with the aid of a clean soft cloth or cotton. If this is not convenient, hold the bird's head with the closed eye up and spit in it, allowing the sputum to flood the eye for a minute, when it will come open. This sounds like an unclean remedy, but it is a good one nevertheless. In fact, sputum is good for most any kind of sore eyes.

Canker will cause sore eyes, but if the canker appears on the side of the head near the eye you can always tell a canker sore eye by the presence of a hard lump on or near the eye. These lumps are apt to be of most any size from a grain of wheat up to a lump almost as large as the bird's head. This form of canker is not serious and can be removed by cutting a large enough slit in the skin with a sharp knife to permit the cankered lump to be squeezed out. The wound will bleed a little when cut, but not to hurt anything, and will stop bleeding as soon as the cankered lump is removed. There will be no blood at all from the inside of the cankered lump or the pocket it is in. The wound will heal up immediately and the bird will get well.

When several birds are confined to close quarters or in shipping crates, they sometimes pick each other in the eye, which will make it sore. There is nothing necessary in such cases, as the eye will heal in a few days, although it may look very bad at the time. If a bird should in any way lose an eye they will work and produce as many good squabs as they would with two good eyes. They, of course, will not look as well with one eye, but are just as useful. A good rule is to save a one-eyed female and kill the one-eyed males.

There are some good eye remedies on the market, but the percentage of sore eyes is small with a good flock of healthy birds and the cure of all such diseases is so uncertain with pigeons that it is hardly worth while to doctor them, except in extraordinary cases with birds of special value.

LUMPS ON WINGS

Lumps on pigeon wings are generally due to a sprained or dislocated joint, as a rule caused by rough handling and catching of birds or by catching them by one wing and allowing them to twist or turn around and thereby dislocate a wing joint. Nature tries to heal the place and as a protection grows a grisel-like substance over the affected part; the bird cannot use the joint, which affects or entirely prevents flying. Very little can be done for a broken, sprained or dislocated wing.

The next usual cause for lumps on wings is canker. This is a different form of canker than appears in birds' mouths and throats. Lump canker it is called, and while it often appears on the wing, it is just as apt to form on any other part of the body. This can be easily cured by splitting the skin and flesh over the bump and take the lump out as is explained in cutting canker lumps from eyes.

By examining lumps that appear on the wings one can readily tell a canker lump from one caused by an injury. The canker lump will stand out farther from the body and you can easily detect the canker substance inside before it is opened. Then there is what is known as a diseased joint, which seems to be more or less hereditary, sometimes caused by close in-breeding. These diseased joints are thought by some to be tubercular in form. Perhaps so, it seldom hurts birds and they will live for years, and keep up constant work in that condition. If a bird, however, is disabled to the extent that it can not fly the best plan is to get rid of it as it does not add to the looks of the pen and will be compelled to nest on the floor which is bad.

SORE FEET

If pigeons are allowed to stay in a dirty loft or walk on muddy ground, they are apt to suffer with sore feet, which is caused by the dirt sticking to the bottom of their feet and causing the skin to crack and bleed. The remedy for this trouble is to soak the dirt off with warm water, then grease the feet with tallow mixed with turpentine or lard and turpentine. Tallow is better than lard. The tallow must be warmed before it will mix with turpentine.

If sore feet are not taken care of the trouble will become

chronic. Rough calloused growths will appear on the bottom of the feet and feathers will start growing on these sore places until the bird will get so it can hardly walk. Turpentine and lard or tallow is about the only remedy and a dry, clean place for the bird to stay until its feet are well.

MUD BALLS

Muddy pens or lofts will cause birds to get mud balls on their toe nails, and if not taken off will keep getting bigger and bigger, like a snow ball, and cause the bird to lose its toe nails, and sometimes go lame. The way to get the mud balls off without pulling the toe nail off is to cut them off with a knife. You will find the ball the thinnest on top, and by cutting or splitting the mud ball along the top of the nail, holding the toe as you would sharpen a pencil, you will find it no trouble to get the ball loose from the toe without damaging the nail or making the toe bleed.

Squabs in the nest will sometimes have mud balls form on their toes due to dirty nests, which generally comes from bowel trouble. In such a case the nest should be cleaned out, fresh nesting material put in the nests, the mud balls removed from the birds' toes as above explained, and then change the feed or conditions that caused the birds' bowels to get out of order. Squabs will not fatten under such conditions.

SIMPLE REMEDIES

Some simple remedies suggested by Mr. Roy Y. Whitney in American Pigeon Journal as follows:

Colds

Rub yellow mercuric oxide ointment into a bird's eyes that are watery and sore, once a day for three or four days and you will be pleased with the result.

If your birds all seem to be catching colds, are coughing or sneezing, the following remedy will bring results: Fix your house so you can close it up tight. When the birds have all gone to roost, set a burner in the house with a pan over it containing about 1½ pints of water and a big tablespoonful of Cresoline. Light the burner and close up the house. Allow

the vapor from the boiling Cresoline to rise for a couple of hours every evening for a week. This will eradicate a contagious cold. Give the birds a good laxative of Epsom salts in their drinking water while so doing.

Canker

Hard canker can be cauterized with chemically pure blue vitrol or bluestone. Wet a little paddle in some water so the bluestone will cling to it. Hold the paddle against the canker for a minute or so. Remove the blackened canker carefully before applying the second time. Treat about twice in one day. Be careful not to let any bluestone run down the bird's throat. A caustic pencil will cauterize small spots of canker. Get the bluestone at a drug store. The above remedies will do for an occasional case of canker, but when it runs through a whole flock, you had better look to your feed and water. Plenty of liver salts put in the drinking water every day for a month together with a feed suitable to the climatic conditions will stamp it out of a flock. Slightly underfeed your birds and cut down on yellow corn, hemp, or any other grain that is very heating. In other words, allow the bird a chance to cool off his blood. You will hardly ever find canker among underfed birds.

Cheesy Canker

Dip a piece of cotton into some Ichthyol and swab out the bird's throat once or twice a day. Do not allow any to run down the bird's throat. The cheesy canker or diphtheria roop will disappear.

Loose Bowels

Cut down on the amount of soft wheat you are feeding and substitute rice. If a bird is very sick, give it nothing but boiled milk to drink with its feed. If the droppings show that the bird has a cold in the bowels, make it swallow two No. 5 capsules full of quinine every day for three or four days, after which give it a physic of Epsom salts.

Sour Crop

Purge the bird's crop with salty water. Give him a charcoal tablet, and let him go hungry for a day. Do not let him overeat

for a day or so. If you feed clean grain and keep plenty of charcoal and salt before the birds, they won't be troubled with sour crop.

Egg Troubles

Plenty of lime made into a paste and stirred into the grit will keep away the thin-shelled eggs. A small quantity of lime in the drinking water occasionally will also be of benefit. Do not pick a squab out of a hard shelled egg. Cover the egg well with saliva and lay it back in the nest. Your squab will hatch out without any further help.

Vermin

When you do your whitewashing, use about one pint of Cresoline to every 10 gallons of whitewash. It will keep the bugs out of the boards and cracks. If you cannot get this, you can use salt. Mix the lime with a good strong solution of salt brine. Salt brine will kill almost any kind of an insect and so will salty whitewash.

Spray the ground well with the whitewash; turn it over with a spade and spray it again. Your birds will not have to walk around on foul earth, which looks clean. Remember they are built to walk pretty close to the ground.

Tonic

Ten drops tincture of Gentian to each gallon of water is a good tonic. Give it once a week. Ten cents worth of permanganate of potash in one-half gallon of water makes a good strong tonic. Color the drinking water to the same strength as you would were you using Germazone, a little Venetian Red mixed into the feed once a week is a good cleanser.

Feather Rot

Feather rot in the wings or tail feathers can be cured by using vinegar on them. Apply it with a medium stiff brush. Do not try to make use of all these remedies at one time as there is such a thing as overdoing the doctoring stunt. Give the birds a good clean house, clean feed and water and you will have very little doctoring to do, especially if you take an interest in their everyday welfare.

FEEDING WEAK OR SICK PIGEONS

As a rule when a pigeon gets so sick or weak that it will not eat the regular feed provided for well birds there is not much use trying to do anything for it unless one has plenty of time or has a special bird he wants to save. Young birds just after the parent bird has stopped feeding them are the most likely to need special feed, or females that have been driven too hard by the male bird. If either is cared for in time all that is necessary is to put them in a pen by themselves or with other such birds and see that they get plenty of good rich feed including a little hemp, plenty of peas and such grain as millet, buckwheat, lentils, vetch, etc. Any of these grains will be eaten by sick birds when they will not eat the more common grains.

These grains are generally more expensive than regular feed so they must be fed sparingly.

If a bird is so sick or weak that it will not eat, then feed must be forced down its throat. (See article on "Feeding Squabs by Hand.") A bird that is so far gone that it will not eat of its own accord, especially when it is given special grain, is as a rule past doing anything with.

In such cases a mixture of two parts wheat bran and three parts corn meal with about a spoonful of ground red pepper to a cup of bran and meal is about the best thing to give them. This mixture should be made wet enough with water to make it easy to force down the bird's throat or it can be given in capsules. This is an especially good way to give most any kind of medicine or feed to sick birds. Cotton seed meal or peanut meal is a good thing to mix with bran and corn meal. About one part to five parts of bran and corn meal.

Small cubes of toasted bread is also excellent feed for sick birds.

FEEDING SQUABS BY HAND

Motherless squabs can often be successfully raised by hand if one has patience and will take the time to do so. If you have never fed a squab by hand, you will find the work very tedious at the start, but a little practice will enable you to show a marked improvement.

Hand feeding is no more nor less than forcing the bird to eat by poking the feed down the bird's throat. To do this you should open the beak with the left hand and poke the grain in with the right hand. The best way is to set the bird on something, then take its head and neck in the left hand, resting the edge of your hand on the bird's back to hold it from pulling away. Then hold the lower half of the beak between your thumb and second finger. Lift up the upper half of the beak with your front finger and put a grain of corn or other feed in the bird's mouth and release its head to allow it to swallow. If it does not swallow and persists in throwing the feed out, then you will find it necessary to poke the grain part way down with the front finger of your right hand. Repeat this operation until the crop is fairly well filled.

If you give the squab a drink before you start to feeding it the grain will go down easier. Some real young squabs will drink if you stick their heads in a cup of water.

If they will not drink of their own accord, you should pour some water down their throats. You can best do this with a spoon, or better still with a medicine dropper, holding the bird the same as you would to feed it and opening the beak in the same way. Do not be afraid of giving the bird too much water.

A small squab can consume two or three tablespoonfuls of water. If the grain chokes up the bird's throat you can work it down with your fingers from the outside.

In addition to feed and water, a bird should be given a very small amount of grit, oyster shell and charcoal. Hand fed squabs will not do as well as if fed by their parents, but they can be raised by hand and develop into good birds.

Hand feeding can be done in connection with the feeding of the old birds, which is often a good thing if one has a good special squab that he desires to raise that is not getting enough feed. In such a case a few peas given to the squab nightly is a good thing. If it is fed by hand during the day it will not beg or tease its parents for feed as much as it would if hungry and so would get less feed from its parents.

If you have three or four squabs in one nest it is not a bad plan to feel their crops at night and either change any that have empty crops to other nests or hand feed them a little.

A hand fed squab will do better if you can slip him in a nest

every day or so where he will be fed by an old bird, or if you can exchange the squabs that you are hand feeding for other squabs daily, it is better, for then the same squabs will not be hand fed constantly.

A breeder with a large plant will always have young squabs in other nests about the same size and thus be able to have any orphan squabs fed by foster parents, so that hand feeding will not, as a rule, be necessary.

HELPFUL REMEDIES

The experience of others is always worth something and so I quote in part from John S. McCreight:

Pigeons in general have fewer diseases and ailments than chickens and less doctoring is necessary. There are times, however, when a little medicine or tonic is absolutely necessary, and if given in time will prove beneficial to those needing it and act as a preventative to those not afflicted.

Pigeons are active and full of life when in good health, and are without doubt the liveliest and most hustling family of the feathered tribe.

A bird when off his feed or sick is soon noticeable. You will see it huddled off to itself, feathers all turned up and its head in between its shoulders. You know the moment you see it that something is wrong.

Now, to find what is the matter. Catch the bird and examine its throat; see if there are any sores or ulcers in the throat. If you find yellow pimples it doubtless has canker.

If you find nothing wrong with the throat, examine the "craw." If it is full and mushy and the breath of the bird is bad, it has "sour craw."

If neither of the above are found and you are not experienced in pigeon raising, you are rather up against it. There are a good many things that would make the bird act the way it does. If a young female, she might be egg-bound, or the bird might be going light. If you cannot determine what is wrong, pull out the bird's tail—all the feathers—give it half a teaspoonful of castor oil and put in a coop by itself. Give plenty of fresh water and some stale bread crumbs and a little hemp. The chances are that with this treatment the bird will be all right in a few days.

It takes very little medicine around the loft and a mighty good idea is "not to doctor"—go on the principle of leaving well enough alone. Should you happen to need medicine for a sick bird, I will give you a few remedies:

A tonic to put in their drinking water that I have used for several years and found very satisfactory is given below. I have given this every spring and every fall and it is about the only tonic I use. It can be filled at any drug store and costs generally about 35 cents.

Tonic.—Copperas, one-half ounce; sulphate of soda, four ounces, gentian root (powdered) one-half ounce; phosphate of soda, two ounces, and pure creosote (Beechwood), one dram. The creosote must first be rubbed well in a mortar with about 40 grains of calcined magnesia. Put the creosote, after being prepared, in two quarts of hot water, stir well and gradually add the other ingredients, then set away and keep in a cool place. Dose: One tablespoonful to a gallon of water, and have no other water in the fly pen. Give them this once or twice a month and it will likely keep them in good condition.

Diarrhoea.—Two drops of laudanum. Put bird in dry clean coop; no water or feed for twenty-four hours. Repeat dose in six to ten hours, if needed. Feed toasted, very brown bread crumbs for a couple of days, then a little hemp and then on regular feed.

Canker.—Put in the bird's throat, on the sores, some burned alum or you can use a little tincture of iodine. However, my remedy is the axe and I immediately break up the mating that produced the canker squab. Watch this pair carefully and see which of the parent birds is responsible and get the one responsible out of the loft.

If a bird doesn't eat like it should and shows a poor appetite, give one grain gentian root.

Epsom salts is used by a great many in the summer. Put a teaspoonful Epsom salts to a quart of water and give no other drinking water. For a large number of birds increase the quantity in the same proportion.

Cod liver oil is good to use on a bird off its feed. Dose: Three drops at a time, say, three times a day.

Hypophosphites of lime and soda is also fine for a "going light" bird. Dose: One-fourth of a grain, three times a day.

Sour Crow.—This is caused from several causes, chief of which is not feeding the birds regularly. You miss a feed and then the birds get very hungry. When you do feed them they eat too much, drink water and the food becomes sour before it is digested. The treatment is to hold the bird upside down and gradually work the food out of its craw. Don't try to get the food out too rapidly, but work easy and gently. Give the bird a little fresh water when you have the craw cleaned and bread crumbs. Let it stay in the coop until it is well, gradually adding grain to the daily feed until it is able to go on regular rations, but as I have said before the best remedy is to feed, water and house birds properly, and in this way prevent diseases. Pigeons are naturally very healthy and will keep well if conditions are right.

CHAPTER XI

MATING AND SELECTION OF BREEDING STOCK

HOW PIGEONS MATE

Pigeons will mate and go to raising squabs under almost any conditions. Naturally, they will mate and do better under favorable conditions than otherwise.

Almost any male or female pigeon will mate with almost any other male or female, regardless of size, color or kind, provided, of course, they are given an opportunity to mate by shutting them up together, or putting them in a pen where there are no other unmated birds. If ten, twenty or more females are put into a pen with an equal number of males, in time there will be as many mated pairs, as there are males and females combined in the pen. That is to say, if 20 males were put in with 20 females and 19 of each mated, the twentieth male and twentieth female would then mate, there being no other odd birds in the pen for them to mate with. As a matter of fact, pigeons do very little choosing when it comes to selecting mates. The time, place, and condition of the birds has more to do with their pairing up than any particular attraction that one bird might have for another bird of the opposite sex.

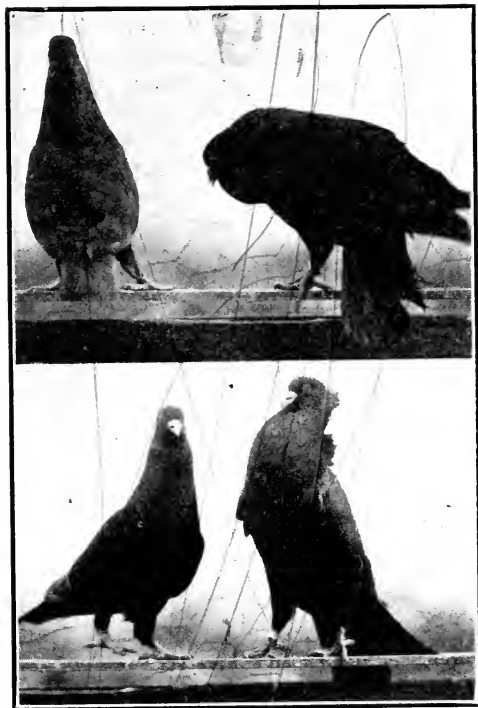
For instance, if a male has no place to mate, he is not apt to want to mate, but if he has a home, so to speak, (a place to build a nest that he considers his private property), he will protect that place from all other birds, and it will be his natural prolific instinct to secure a mate and go to housekeeping. When he is in this mood, he will go to his nesting box, or place he controls, and call for a female by successive long, cooing sounds. He will keep this up for hours at a time. If there is an unmated female in the pen, such cooing is "sweet music to her ears," and will attract her to the nest or place where the male is. She will find him in a squatting position, and generally slightly flapping or quivering one wing, as he coos or calls. To signify her willingness to mate, she will fly up to the entrance of the nest with her wings slightly held out from her

body alighting, with her neck feathers puffed out, which gives her, as a whole, a very mild and pleasing appearance. While the male is anxious for a female to come, he, nevertheless, considers her an intruder, as far as his house is concerned, and, therefore, at first he will not let her come into the nest box or get too familiar on his premises. He will fight her away vigorously, and then go back and resume his calling. The female not to be discouraged, will return again and again, until finally the male will let her come into the nesting box, which place she will enter, strutting and prancing in a very sprightly manner. She will rush right in almost on top of the male and pick him on the head and neck. For a time he will chase her away and then finally submit. If they are not disturbed or separated at this point, they will soon consider themselves mated, but the courtship and lovemaking does not end here.

Newly mated pairs can be found at almost any hour, for several days after they have mated, squatting together in the nesting place; the male now having changed his long loud coos to short, low tones, uttered in quick succession. The female will also coo a little during this period, but her cooing is not as loud or as coarse as the male. The same lovemaking will take place each time before a nest is built for a new setting of eggs and squabs, but only for short periods. Like people, their longest honeymoon is at the start.

If the female has no mate and does not hear any calling or long cooing, she will signify her desire to mate by prancing up and down with her wings spread away from her body, slightly, and now and then strutting with her tail on the ground. She will show these signs particularly strong as she lights after short flights from one place to another. Males that already have mated will be attracted by this flirtation, and often take advantage of the opportunity to court unmated females when they see them strutting around in this fashion. While the male does not intend to permanently mate with the female, she does not seem to know this, and takes him to be sincere (human nature). Sometimes a male will become so fascinated and interested with his new prospective spouse, that he will desert his regular mate even though she might have eggs or young squabs. In fact, such a condition is more apt to happen if she has eggs, for the reason if she is on eggs she does not see him;

otherwise, if she is there on the spot, and sees what is going on, she will immediately interfere and give Miss Flirting Female a good picking; but, strange to say, she does not seem to blame her mate, and lays all the blame on the weaker sex.



PAIR OF CARNEAUX

Picture shows cock in the act of cooing to his mate. This pair is just beginning to build another nest.

If there is an odd male in the pen, he is apt to cause considerable damage, especially if he has secured a nest and has worked laboriously to entice some prospective mate to his home. Then he will change his tactics, by the rule that might makes

right, and proceeds to try and win him a mate by physical power. If he can succeed in whipping some other male away from his nest, breaking up the family, it is possible for him to secure a mate in that way; but by his undertaking, he generally only succeeds in breaking eggs, killing young squabs and wearing out himself and his antagonist, without getting the female to desert her former mate.

The female will invariably contribute to the defense of her home, and try to protect her young ones. It is not desirable, therefore, to have either odd females or odd males in a loft of working birds. It is better to have an even number of males and females, for invariably they will find each other and mate up. The best mating plan is to take an equal number of odd males and females, and shut them up together until they mate, and then turn them in with the regular mated birds.

As stated previously, a male can be mated with almost any female, regardless of color, size or kind; so if you desire to mate any particular male with any particular female, all that is necessary is to shut them up together for a few days. Of course, they should be given food, water and grit during that time, and should have a place where it would be possible for them to make a nest. Large space, however, is not necessary. A small coop with two or three square feet of floor space is all that is needed. The mating coop should be sufficiently ventilated, yet free from drafts, as birds will catch cold quicker shut up in a small place than in an open room.

Newly mated birds must be left together long enough to become well mated before putting them in with other birds lest they separate. If they are to be put back where their old mates are, they must be kept away several weeks or they will likely separate and go back to their old mates.

The statement that any pigeon will mate with most any other pigeon does not mean that I sanction or believe in the plan of crossing breeds. On the contrary, I am very much opposed to crossing breeds, as it is not practical to create new breeds, and mongrels generally inherit the inferior qualities of both parents. Elsewhere in this book, will be found an article on this subject.

HOW TO TELL MALE FROM FEMALE

With most breeds of pigeons, the male is a little larger than the female. He has a coarser look, thicker neck and larger legs and feet. These differences can only be readily noticed by comparison or by those who are not only familiar with pigeons, but with that particular breed. The age of the birds must be considered. An old female is apt to be taken for a young male if one is judging by looks only or comparing two males or two females of different age. In such a case they are apt to pick the old bird for the male and the younger for the female. As a rule the male is more muscular, stronger and masculine. The best method to use, however, to tell the sex is to watch the birds in their everyday life.

There are many ways that I can tell the female from the male that it would be difficult for me to fully explain. For instance, they drink and eat differently. The difference is so slight that you can only learn it by experience in watching them. A male will fly a little different than a female on special occasions. Their general carriage and actions in the fly pen and loft are different, all of which is hard to describe, but can be detected if you will give the matter careful study and attention.

Here are some of the most common ways of distinguishing the sexes: the female bird can be found on the nest when she has eggs or small squabs early in the morning, late in the afternoon, or at night. The male is on the nest between 9 or 10 o'clock and 3 or 4 o'clock, except during the laying period, when the female is apt to be on the nest any time during the day. The male carries the straws to build the nest with, and the female sets on the nest and arranges them in order. The male will usually get in the nest box and call its mate by long, cooing, monotone sounds, when they are mating up, or just prior to building a nest. A male will fight quicker and harder than a female. A male will whirl clear around when he is cooing on the floor or in the fly pen, while the female, if she coos at all, will not turn over a quarter or half way round. A male will strut along after another bird, coo and drag his tail on the ground, walking around in a proud, prancing way, with his head up and neck swelled out. A female will do very little strutting and will carry her body more horizontally as she

struts, and will do very little cooing. The feathers on the end of the male's tail are generally worn out and the feathers on the female's tail are usually in perfect condition. This is caused by the male dragging his tail on the ground when strutting and, as a rule, is a very good means of telling the sex.

After a pair of pigeons have become mated, they will be found together more or less until they lay and go to setting. They generally start to building a nest several days before they lay and during that time they do a lot of spooning, lovemaking or kissing. Here again the male bird can be distinguished from the female by its actions. The male bird will pick behind one wing at intervals during the billing process. The male bird then opens his mouth or beak, in which the female inserts her beak, and the two go through a pumping like motion. This is called kissing. Billing is another term for kissing. If a male birds wants to kiss, and the female is not particular, he will walk around picking himself under the wing and working his throat like he was swallowing something. If a female wants to kiss and the male is indisposed, she will run up to his side, and stretch her head up to his, fumbling around his beak and over his head with her beak. The male seems to enjoy this and will often sit down and shut his eyes, while the female keeps up her fondling.

There are several old-fashioned tests for determining the sex of pigeons, but I have never found any of them very dependable. It is said that if you catch a female around the body, holding her wings down to her body with both hands, then throw the hands up and down, she will throw her tail up, while the male held in the same position and with the same movement will throw his tail down.

Another test is made in the dark with a candle or lamp. The male is supposed to look directly at the light and the female to one side. All such tests more or less remind me of the fellow who said he positively could tell a male from a female by throwing some hemp in where the bird was. Then, if he ate the hemp, it was a he, and if she ate it, it was a she.

A fairly good sex test is to feel of the vent bones. On the male they are generally very close together, and on the female they are separated, one-half inch or more. This test applies better with birds a year old or more, or after they have started to lay.

The vent bones of a female are separated enough to permit the laying of an egg. The habits of the male and female are very different and by a little experience, study and close observation it becomes rather easy to distinguish one from the other.

THE GROWTH OF A SQUAB

Pigeons mate and start to raising squabs between the age of five and eight months. They lay two eggs only for a setting, the first egg generally being laid in the morning and the next egg the



SQUABS SEVERAL DAYS OLD

third morning thereafter, there being no egg laid the second day. After the second egg is laid, they immediately go to setting. If the weather is extremely cold the mother bird will hover the first egg sufficiently enough to keep from freezing, but not enough to start incubation until the second egg is laid; thus the hatching of the two eggs takes place about the same time. It takes seventeen days for pigeon eggs to hatch after the pigeon starts to set. As explained elsewhere, the male bird takes his turn daily on the nest with the female.

When the squabs are first hatched, they are very tender and delicate, more like a baby than a chicken from the standpoint of being helpless. The parent birds cover their young ones for several days after they are hatched to keep them from chilling even in warm weather, and for a longer period in cold weather.

Until a squab is four or five days old it cannot take grain into its crop, and is fed a gruel-like substance called pigeon milk that forms in the crop of the parent birds after they have been setting about 15 days. Then the parent birds begin to feed them small grain, which is always mixed with a good portion of water, keeping the young ones' crops well filled at all times. The young birds grow very rapidly.

A pigeon egg is about the size of a hickory nut, a squab four days old is twice the size of a hickory nut, and when a week old is as large as a hen's egg or small chicken. They continue to double in size about every week, until they are as large as the old bird at four and one-half weeks old. When a squab is first hatched it is covered with a very fine down like a small chicken, pin feathers start in the wings and tail and along the top of its back immediately. At two weeks of age it is well covered with pin feathers, and the feathers are developed to such an extent that its color can be fairly well determined. At four weeks of age it is feathered out almost completely with little bare spaces on its side under the wings. When the bare space under the wings is covered with feathers, then the squab is old enough to kill, and if not killed it will soon leave the nest.

Squabs do not leave the nest or fly until they are four and a half or five weeks old, and they cannot feed themselves until after that age. Once a squab leaves the nest it starts to getting poor, which is caused by exercise and the lack of being stuffed with food by its parents. A squab should be killed and market-

ed before it leaves the nest. It begins to get tough and is not very good to eat after five weeks of age.

The quick mushroom growth and the lack of exercise is what makes squab meat so tender and delicious. Some breeders have classified squabs by giving them different names at different ages. They are first called peepers, as they make a small peeping noise about the time they are ten days old; they are next called squeakers until they are two or three weeks old, then squealers until they are four weeks old, when they are called squabs. These names are taken from the noise that a squab makes. They first peep, then squeak, then squeal when they are hungry and wish to be fed, and will keep up the squealing noise until seven or eight weeks old.



SQUAB TWO WEEKS OLD

Squabs have a larger beak than old pigeons, and this furnishes a good means of distinguishing squabs from old birds. Until they are eight to ten weeks old the beak is very soft and appears large. One reason for this is the lack of feathers around the beak, which grow down as the bird gets older.

ANATOMY OF THE PIGEON

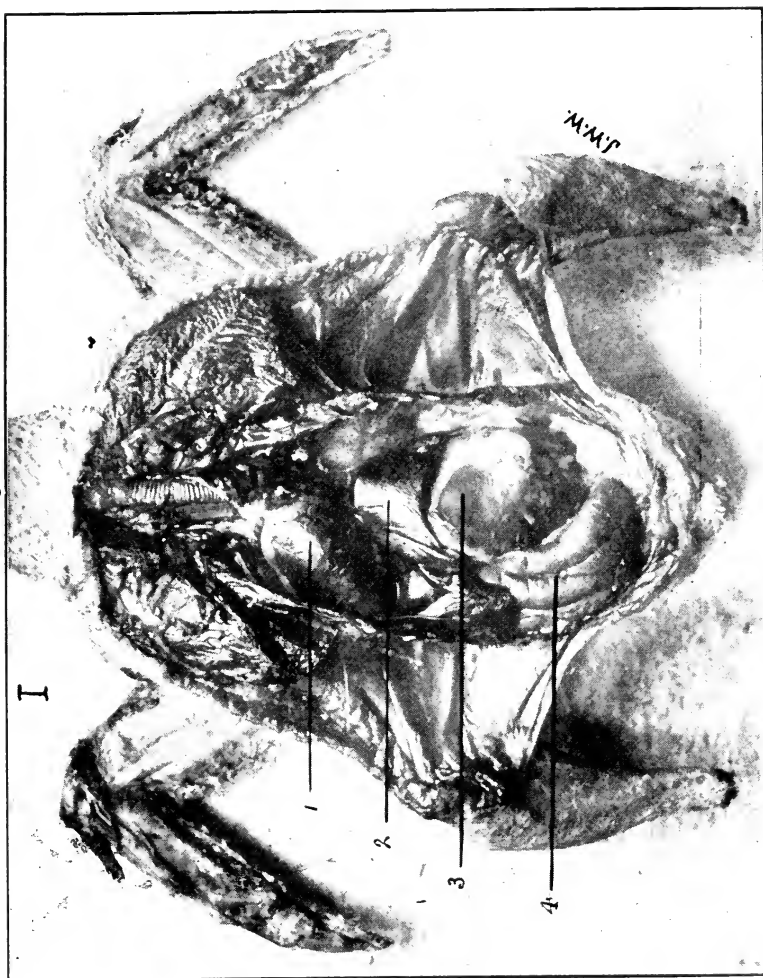
Mr. J. W. Williamson of Glassboro, N. J., has been kind enough to furnish me the drawings of the inside of a pigeon which are here reproduced together with his description of same:

How true is the saying: "We are fearfully and wonderfully made," and as we study the frame of men with its wonderful organism held intact and the wonderful mechanism of each organ, one depending upon the other fulfilling their several functions with the heart pumping away day and night from birth till death, it is no wonder we look with amazement at our own construction. But can we not find something interesting in the construction of the squab or pigeon? I believe we can, which will be fully covered in a book I have well under way, entitled: "The Anatomy of the Pigeon." In this chapter however, will be found three important plates, the squab, male bird and female, which I believe of value to the squab raiser.

It is surprising to note how fully developed are the organs of a squab, as when only four weeks old. The respiratory organs, the heart, liver, gizzard and intestines appear as fully developed as a bird one or fifteen years old, and the carcass in many cases the same size as its parents, but with fowls it takes a squab broiler chick a year to get the growth of its parents.

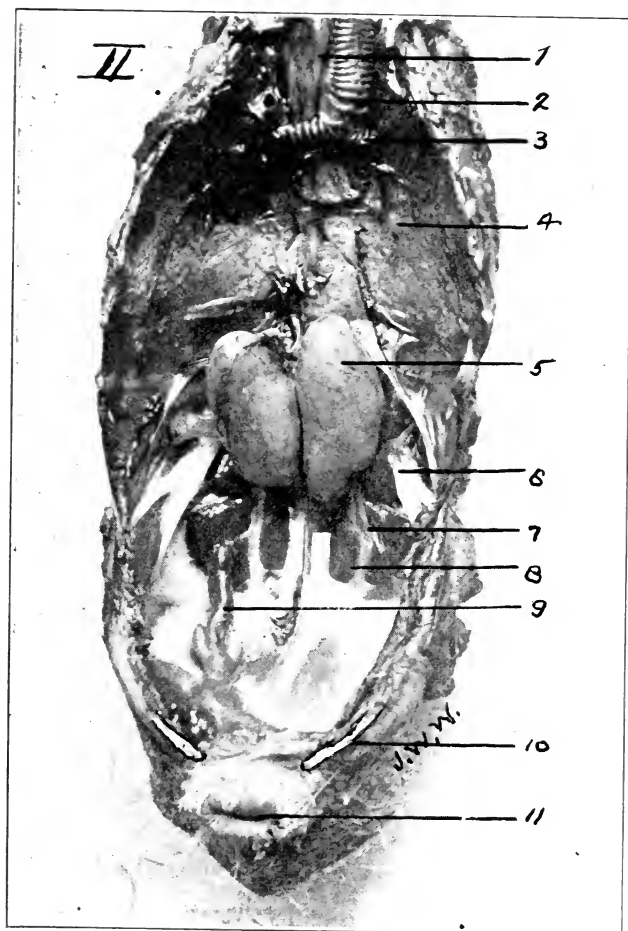
Plate I. is a photograph of a squab 4 weeks old. Figure 1 shows the heart on the right side, just the reverse of the human being, 2 the liver, 3 the gizzard and 4 the intestines.

In dissecting a female pigeon the first thing that excites a person's curiosity is the difference between a female and female fowl. As will be noticed in the ovary, commonly called the egg bag, there is not a large quantity of eggs as there is in a fowl. In a fowl they gradually increase in size due to laying every day or skipping a day now and then. But with the pigeon they are noticed in pairs as the pigeon lays two eggs close together, and then does not lay again until the embryo is grown into a squab, 2, 3 or 4 weeks old.



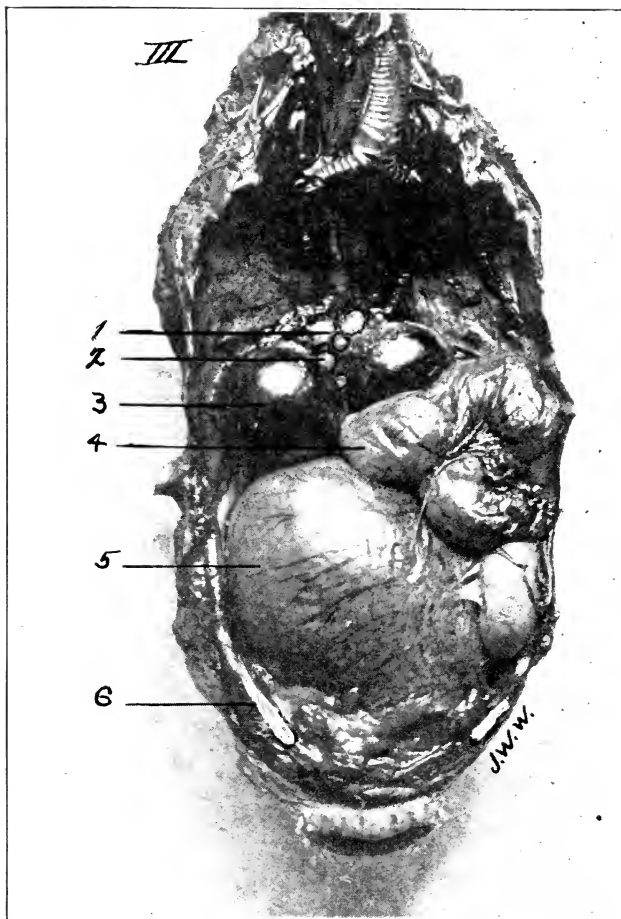
THE INSIDE OF A SQUAB

1. The Heart. 2. The Liver. 3. The Gizzard. 4. The Intestines.



MALE PIGEON

- | | |
|-------------------|-----------------|
| 1.—Aesophagus | 7.—Ureter |
| 2.—Trachea | 8.—Vas Deferens |
| 3.—Bronchial Tube | 9.—Rectum |
| 4.—Lung | 10.—Vent Bones |
| 5.—Testicle | 11.—Anus |
| 6.—Kidney | |



FEMALE PIGEON

- 1.—Two small eggs with the ovary.
- 2.—Two eggs a trifle smaller than the above.
- 3.—Two that are about ready to enter the oviduct.
- 4.—Oviduct.
- 5.—Egg almost ready to be released.
- 6.—Extended vent bones, showing the great distance between them compared to the male bird.

HOW TO KEEP AN EQUAL NUMBER OF MALES AND FEMALES

One of the difficulties of a squab plant is to keep down the percentage of extra cocks, which accumulate in excess of females for various reasons. In this respect nature seems to be at fault, for there is not a single exception in the favor of the life of a female over the life of a male.

If one egg fails to hatch, invariably it is the female egg. If a young squab gets trampled to death in the nest, it is usually the smallest one, which is generally the female. The male and larger squab crowds the smaller ones away at the feeding time and in such cases the larger squabs continue to grow and get strong and the small ones, the females, stand back and sometimes starve to death.

Females are more delicate and subject to colds and this often-times causes their death. They are often driven so hard by the males that they get poor and finally die. The natural life of a female is shorter than the life of the male.

With these things taken into consideration there is usually quite a percentage of odd cocks to be disposed of, unless one manipulates and disposes of the male bird as a squab. By a systematic method, one can guard against the over production of male birds, which is necessary in order to make a squab plant as profitable as possible.

The larger squab in the nest is invariably the male, so in taking them out of the nest for market purposes, one should save a few of the smaller ones for breeding purposes. It is a good plan to band these birds then and there, so that the next time you are around gathering squabs, you will know that the odd squab in the nest is a female. It is hard to tell the sex of young birds, especially at squabbing time, unless you are familiar with the flock.

Different flocks of birds have different characteristic markings that enable one to determine the male from the female the majority of the time. This is especially true with color marking. For instance, most of the male birds from a certain pair will be marked in a similar way and most of the females will also have a separate marking. In such cases it is an easy matter to tell the sex of the young birds as soon as they get their feathers.

One of the best ways to keep the sex even is to cull out the smaller inferior males and remate their mates with young cocks of size and quality. This can be done without loss of squab production, if the remating is done when there are no eggs or young that would be neglected or when there is but one egg or one squab that can be transferred to another nest. See articles "When But One Egg Hatches" and "How To Tell the Period of Incubation," pages 155 and 156.

WHAT TO DO WITH ODD COCKS

A good method is to have a separate pen for odd cocks and nothing but good, high grade cocks should be kept in that pen. The small and runty ones should be disposed of or turned loose or into soup. Then as fast as your young females get old enough to mate, they should be turned into the pen of odd cocks, or a still better plan is to select special birds from your odd cock pen and put them in equal numbers with young females in another pen. As soon as mated each pair should be taken out and put in with other breeders. This method will cause the female to mate up a little earlier than they would with young cocks and will enable you to grade your flock up by selecting your best odd males for your young females.

You can also draw from your pen of odd cocks to replace small and inferior males that you notice from time to time in your plant. It is better to dispose of any inferior odd male even if you have to give it away, than to keep it, for it only consumes feed and will never be of any value for breeding purposes.

You will always have more cocks than hens for breeding purposes, so why keep inferior odd cocks at a dead loss and expense? Keep only the extra good ones and turn the others loose, give them away to people that might be able to use them, or make soup out of them, but don't keep them.

BEST METHOD TO IMPROVE THE QUALITY OF A FLOCK

Most people start at the wrong end or backwards to improve the quality of a flock of breeders. If a majority of a flock of birds was perfect, it might be better to separate the perfect birds, then discard the others, but as a perfect bird is practically impossible, and a large majority of every flock is far from perfect, it is best to start in at the inferior end to improve the flock.

If you should pick out your best birds and put them by themselves, you would reduce the average quality of your pens; but, on the contrary, if you eliminate your poorest and inferior birds, you improve the average quality of your flock.

I have tried out a plan of segregating my most perfect birds into a single pen and saving their offspring to improve my breeding stock. This, in a way, will work fairly well, but as all the offspring of all good looking pairs are not up to the standard of their parents, one would be making slow progress in saving such birds for breeding purposes, even though they come from birds of apparent quality. I have noticed many people practice this method, and invariably they save from their best pens youngsters for breeding purposes which are far inferior to the best youngsters produced in other pens.

One should go through his plant once or twice a week spotting birds to be taken out, when by doing so no eggs or young will be lost. For instance, we see a small, under-average cock in pen No. 10. We investigate and find that he is also a slow breeder or that his squabs are not large and fat as a rule. We then decide to take him and his mate out. We find, however, that they have eggs or young ones, so we make a calculation as to the time they can be removed and on that date we finish the work started a week or even a month before. The mate, if a good average bird, is remated with a good cock and put back to work. All culled out birds can be used for soup, sold on the market or jobbed off in a lot to some one who is not particular about quality. In short, I advise the improvement of quality by methods of elimination rather than by special selections.

SELECTION OF YOUNGSTERS FOR BREEDING PURPOSES

Like the rearing and breeding of cattle, horses, hogs or any other animal, much depends upon the parent stock and the grading and building up of the stock to be kept to breed from.

The size of your flock, the size the flock is desired to be increased to, the time of the year, and the rapidity in which you desire to increase has considerable to do with the selecting method. However, there are several cardinal principles you must follow when saving young birds for breeding purposes,

and the closer you follow these principles, the fewer exceptions you make, the better will be the results.

To start with, if you save youngsters from inferior pairs, naturally those youngsters will not be as good for breeding purposes as the youngsters saved from your best pairs. What I mean by best is breeders that are of good average size, good type, and have produced a large number of fat, healthy squabs. The parents must necessarily, therefore, besides other qualities, be motherly, good feeders and domestic. Youngsters saved from this class of breeders will, on an average, prove better all around birds and more dependable for squab producing purposes than youngsters saved from birds which are too large, too small, or out of breeders slow and lazy or poor feeders. By the latter term I mean a bird that does not feed or take care of its squabs well.

If an old bird comes from a good strain, and is not quite up to the standard itself, its youngsters are often superior to youngsters produced by birds of an inferior strain, even though they are of a fair size and type. This is a point worth considering.

The best time of the year to save youngsters for breeding purposes is in the winter or spring, for the reason that they will grow to maturity, pass through the moult, mate and start breeding before cold weather, and then continue to breed all winter; while birds that do not get old enough to mate before cold weather are apt to sit around all winter and not start to work until spring, but there is no set rule on this.

I have found that youngsters will not produce many squabs before they are eight or nine months old, and in the long run, it is about as well to mate them up at that age as it is to crowd them. It is never a good plan to save every youngster for breeding purposes even if you are in a hurry to increase your flock.

Care should be taken when selecting youngsters to save an equal number of each sex. As the largest and best looking squab is invariably the male, and the small, inferior looking squab the female, you will find the majority of the birds saved are males unless you guard against it. As a rule, there is a male and female in each nest, so it is a fairly safe method to save both birds or nest mates, instead of just the best looking ones.

Some breeders, in order to guard against saving more males

than females, use a small open band and band the smaller of the two nest mates, when they are about three weeks old, taking for granted that the smaller one is a female. Then when they take out squabs to market they leave the banded bird in the nest, and the next time they are around taking out squabs, they know that the single bird in the nest is a female. Otherwise, if they have a large plant and could not remember, they would naturally conclude that there was only one bird raised in the nest, and it was a male.

If just one egg hatches, it is invariably the male, and if a bird dies in the nest, it is generally the female, for the reason that the male is stronger, as a rule, and will come nearer picking its way out of the shell and with more vitality will be less apt to die than its sister.

If you should make a mistake and save more females than males you can easily secure enough odd males from some other breeder to even up your stock, but if you save more males than females, it is very hard to secure the necessary odd females, for the reason that most all breeders have a surplus of males, and are short on females.

If you are breeding for color, as well as size, type and other qualities, you can judge your birds fairly well after they are about three weeks old, to such an extent that the best color could be saved. With Carneaux, for instance, when solid reds are desired, all youngsters that have light or slate colored rumps will invariably prove to be splashes, or slates, after they shed their baby feathers, and about as much can be told regarding color at three weeks old as later on until after they have gone through their first moult, which takes place when they are about three months old.

Most all Carneaux look to be solid reds when they are squabs, but at the time they moult out their second feathers, they then take on their permanent color. The same is true to a large extent with other varieties. Personally, I am opposed to breeding for color unless you are desirous of raising show birds or birds for exhibition purposes.

There is very little or no advantage in color from a breeding standpoint. In fact, there is more often a disadvantage. Birds of one color will produce as good and as many squabs as birds of the same breed of another color. The only question is the

color of the meat or skin. Dark meated squabs do not bring as good a price as white meated ones, and birds with dark beaks and dark, muddy colored feathers invariably bring dark meated squabs. Black birds, if their feathers are clear, real black and not muddy looking, will breed squabs with almost as white meat as will birds with white feathers. Again, referring to Carneau, dark billed birds with slate or dark feathers are more apt to breed dark meated youngsters than birds with light beaks (no slate or blue) and light colored feathers. White feathers on Carneau are no objection, because red and white is their natural color, and, in fact, on an average, they are better than the solid reds or solid yellows.

Let me illustrate. The natural color of Durham cattle is red and white or roan. If a breeder of Durham cattle would decide to draw the color line and keep only his red calves, or those that had no white, for breeding purposes, he would from the very start be forced to sacrifice other qualities for color, and in a short time he would find his herd below its standard from the standpoint of milk, butter or beef. A cattle breeder would laugh at you if you were to even suggest his discarding all but his solid color calves, and would tell you he would be doing away with many of the best calves from his best breeders.

CHAPTER XII

PROPER CARE OF SQUABS AND YOUNGSTERS

SOFT SHELLED EGGS

A soft shelled egg is one that is covered only by a tough skin and is without the hard shell covering. This is generally caused by the old bird not having been provided with a sufficient amount of oyster shell or other limey substance. Robbing the old birds' nest a couple or three times in succession will also cause soft shell eggs. Pigeons are not like chickens in this respect. A hen will lay any number of eggs consecutively, and invariably be able to manufacture a sufficient amount of shell to cover her eggs, but a pigeon is only intended to lay two eggs, and then set and raise their young to two or three weeks of age before laying again.

Once a pigeon lays soft shelled eggs, it is necessary to keep her from laying again for at least a month; if not, she will probably continue to lay soft shelled eggs. The best thing to do when a soft shelled egg is found, is to put the pigeon that laid it to setting by substituting an egg with a good shell in her nest, even though it is an infertile or old egg. If it is an infertile egg take it away from her after two weeks' setting, just before she has accumulated pigeon milk in her crop. Then after a week or ten days' rest, she will lay again, and the chances are her eggs will be properly shelled. If the egg is fertile, let her hatch it and take the squab away from her after it is four or five days old, allowing the time for her to feed up the accumulated pigeon milk in her crop. Or if you wish you can allow her to raise the squab in the usual way.

BARREN FEMALES

Some females, for unknown reasons, cease to be producers, that is, they quit laying. If such birds mate up and build nests, which they often do, they can be utilized as foster mothers, by merely giving them a couple of eggs to set on in their nests. Such birds are called "barren females." They will often hatch and raise squabs as well or better than some regular mothers,

I have put barren hens to work by making a nest for them, and putting the eggs in it. Of course, it is necessary for them to have a mate, and a nest box that they claim for their home, otherwise they will not want to set.

A "barren" hen often comes in good play when you have special squabs to raise; that is, one you desire to give special attention to on account of it being from a prize winning pair, and you desire to divide the squabs up into two nests so that each will receive the entire feed and attention of a pair of old birds.

If a "barren" female will not set on other birds' eggs and will not lay any herself, turn her out, kill her or give her to someone who wants a useless pet.

WHEN BUT ONE EGG HATCHES, OR WHEN ONE SQUAB DIES

The number of squabs per pair can be increased by the proper management of a squab plant, which includes keeping the birds up to their full capacity. A good pair of squab breeders will, with proper food and loft conditions, feed two or three squabs successfully. The thing to do, therefore, is to double up the single squabs with others the same size and by relieving the parent birds of the care of the single squab they will go back to work and lay a week or two sooner than if the squab was left in their nest to care for.

This plan can be carried on successfully to the extent of taking two squabs from a nest, placing one each in two other nests, making six squabs in two nests, instead of six squabs in three nests. The squabless pair will re-lay a week or ten days sooner than otherwise and in the course of several months the time gained in this manner will make a noticeable increase in the number of squabs raised.

The transferring of squabs should not be done until they are four or five days old, so that the parent birds will have a chance to feed out the pigeon milk in their crops and the squabs should be given to birds that are the best feeders.

Often a pair proves to be good layers, but are not good feeders, which can be determined by the size and condition of their squabs. Such pairs can be kept fairly busy laying and the best

feeders be given extra work to do in the way of squab feeding.

If your loft is small and you only have a few birds, it may be necessary for you to do some extra shifting or juggling of squabs to accomplish your purpose. That is, you may not have other birds with squabs the same age as the pair you wish to rob. In such case you can double the largest squab in the nest with the largest in another nest and the two smaller ones the same, then put your extra squabs in the nests with squabs nearest their size. Often by increasing or decreasing the size of the squabs in two or three nests by transferring them from one nest to another, you can double up odd squabs to an advantage when on first thought one would think it could not be done.

The best time to transfer squabs is just before night when the female is on the nest, and when she will go back to nest (if she leaves it when you are making the change) hurriedly and not stop to notice that there are strange birds in her nest. If the young ones are about the same size and color, it will make no difference and they can be changed most any time of the day. If squabs are well feathered and of a different color, it is best to watch the old birds to see if they take kindly to the strangers in their nest, as the old birds are apt to fight and kill them under such conditions.

As a rule, the parent birds will feed and care for any squab you put in the nest, unless there is too great a difference in the size and color, and some birds will not draw the line at that; they seem to take it for granted that all squabs in their nest are theirs.

The plan of doubling up squabs cannot be followed very successfully in cold weather as the old bird cannot keep three squabs warm as well as she can two.

HOW TO TELL THE PERIOD OF INCUBATION

When a pigeon egg is first laid it has a clear transparent look, which it loses by degrees as it is set on, until it becomes very opaque, and has a bluish, slick cast just before the squab is hatched. By comparison, and a little experience, one can closely estimate the length of time an egg has been set on.

This knowledge is essential when running a squab plant of

any size; for it is frequently necessary to switch eggs from one nest to another, and eggs so switched should be of about the same length of incubation as the eggs with which they are put. This is necessary in order to have them hatch about the seventeenth day after the old bird went to setting. If they hatch much sooner than that, the old bird will not be able to feed them, on account of not having any accumulated pigeon milk in its crop, and if they do not hatch within eighteen or nineteen days, the old bird will likely leave the nest before the eggs are hatched.

Some breeders follow the plan of robbing a nest and putting the eggs in a couple of other nests, making three in each nest, and in this way allow the birds whose nest was robbed, to lay two more eggs and again start to setting. This is not a bad practice, provided the parent birds of the three squabs are able to keep them well fed and fat, which depends something upon the feeding qualities of the old birds, and the kind and supply of feed they are getting.

I think it is a good plan to rob all nests that have but one egg on account of the other egg having been broken or laid on the floor. I also think it a good plan to rob each nest that has but one squab in it, and double that squab up with some other nest with a single squab, or with two other squabs that are being well fed and are of about the same age. Squabs should not be taken out of a nest, however, until four or five days old, for the reason that it is necessary to the health of the parent bird that they feed out the supply of pigeon milk that has accumulated in their crops while setting.

Parent birds are not able to distinguish their young ones from any other ones until they are feathered out; therefore, they will feed any other squab about the same size as their own if put into their nests. They go more by what is in their nests, than what the squab looks like. If there is too great a difference in size, however, they are apt to kill strange young ones put into their nests by picking them on the head or back.

Some parent birds will become foster mothers quicker than others, and some will care for and feed any number of squabs put into their nests, almost regardless of size or color. You can easily determine this by watching the parent bird go back

to its nest after you have put the squab in. If they are going to fight the squabs at all, they will do so at once.

By a little planning and manipulation, extra squabs can be placed around in a loft to an advantage, and so that they will be cared for by the old ones. A three weeks' old squab, for instance, can be doubled up with the larger bird in a two weeks' old nest, and the smaller bird of that nest doubled up with the squabs in a week or ten days' old nest.

Parent birds will not feed their squabs in any other nest but their own, unless squabs are around four weeks old and then they will feed them if on the floor, or if they are shut up together, but they would not go into a strange nest and feed their own squabs even at that age.

Eggs that are found on the floor or in a fly pen should be gathered up and put in a nest with other freshly laid eggs, or such eggs can be saved some time before setting, and handled the same as you would hen eggs, by turning them over every day or so. A pigeon will not set in any other place except the nest where they laid their eggs, and only then immediately after the eggs are laid.

WHEN BOTH SQUABS DIE BEFORE THREE DAYS OLD

If squabs die in hatching, get trampled to death or die before three days old, it is a good plan to give the old birds a squab from another nest for a day or two in order that they can feed out the pigeon milk that has accumulated in their crops. In doing this it is all right, if necessary, to give them a young one a few days older than the ones they lose, as they will feed the larger bird just the same and even if it is old enough to receive grain, pigeon milk will not hurt it.

The only precaution to take in such a case is to see that the old birds do not fight the strange squab, which they might do if there is too much difference in size.

If the young die in hatching, a young squab can be put in the nest along with an egg or two and the parent birds will accept it as their own. Just before night is the best time to make such transfer and always before the old birds have abandoned the nest, which they will do in a day or so after eggs fail to hatch or almost immediately after squabs die in hatching.

The transferred or loaned squab should be left in the nest

only a few days, then taken away and the old birds be allowed to re-lay and go to setting again. (See article on "When One Squab Dies.") If the parent birds are good feeders and they for some reason lose one or both squabs or their eggs do not hatch, the transferred squabs can be left with them and the other pair be put to laying again.

ONE SQUAB SMALLER THAN THE OTHER

This subject is practically covered in the article entitled "When One Squab Dies," as the process of switching squabs into other nests is the same. That is, both larger and the smaller squabs should be paired up with other squabs of their size, by changing them to other nests. If this is not done, the larger squab will continue to get larger and the smaller one will stop growing.

There is usually a slight difference in the size of two squabs in a nest, but when one squab is considerably larger than its nest mate, the larger one is evidently getting more than his share of the feed and the larger and stronger he gets, the more apt he is to stretch his neck and head above his weaker nest mate at feeding time, with the result that the old bird will give him the feed and the little one will go without.

Some old birds will see that both the squabs are fed even though one is smaller, but as a rule such old birds bring their young ones up in even size; therefore, when one squab in the nest is larger than the other, you can take it for granted the old bird is not feeding the smaller one and that one or both the birds should be switched to another nest. It is not a bad plan to switch the larger bird and leave the small one in the nest for a few days for the old one to feed, after which it can be switched and the old birds put to work.

OLD BIRDS THAT ABANDON THEIR EGGS

Pigeons will abandon their eggs for several causes. Lice or mites will cause them to do so, and dirty or foul nests will cause them to abandon them or leave their eggs. Sometimes they will leave without apparently any cause, except that they seemingly get tired of setting and sometimes this becomes a habit.

About the best thing in such cases is to remate the birds or

give them some young squabs to feed after they have set on their eggs about a week, taking the eggs away from them. The squabs will necessarily have to be old enough to be fed grain, as the parent birds will have no pigeon milk in their crops at this stage of setting. Care should be taken if squabs are put in such pigeons' nests to see that they are fed and that the old birds do not fight them, as is explained elsewhere.

Naturally, if birds abandon their eggs on account of lice or mites, the proper remedy should be applied to rid them of same, and if the nests are too foul they should be cleaned. Young pairs of birds will often abandon their eggs before hatching the first time, but later will stick to the nest until the eggs are hatched. Some males will not do their turn on the nests towards the last of the incubation, preferring to put in their time flirting with other females, and this as a rule will cause the female on the nest to desert her eggs. Some females will give up setting in order to get out with their mate. The remedy for this is separation and re-mating with different birds.

SQUABS THAT LEAVE THE NEST TOO SOON

The principal cause of squabs leaving the nest before time, is lack of feed or water, too hot or too stuffy nests, being neglected by their parents or because the nests are so near the floor that they can easily get out to meet their parent birds when they come to feed and water them.

This is one of the objectionable features of allowing birds to nest on or near the floor. After a squab gets the habit of running around on the floor, it is hard to get it to stay in a nest and generally such squabs will become poor and stunted. About the best way to remedy this condition is to transfer squabs from nest on the floor to other nests before they get very old.

Some old birds will persist in building on the floor. When they do, their eggs should be taken away from them a couple of times and the pair changed to another nest room. As a rule only poor squabs leave the nest too early and the longer they are out the poorer and more scrubby they get. Sometimes such squabs can be induced to stay in a high nest, but if not a couple of slats tacked across the front of the nest box will prevent them from climbing out, yet permit the old birds to feed the young through the spaces between the slats.

About the best thing to do with runty squabs is to kill them and try and change the conditions that caused them to get poor, or that caused them to leave the nest too soon and then become poor. An underfed squab becomes stunted and will never improve very much. If allowed to grow up they are generally under sized birds and inferior in many ways.

WHEN TO REMOVE SQUABS FROM NEST ROOM

Squabs that are to be kept for breeders should be left in the nest room until seven or eight weeks old. This is a much longer period than is practiced by the average breeder. The parent birds, especially the male bird, will feed squabs quite a while longer after they leave the nest, and if there are several birds in a nest room there will most likely be several pairs that are feeding youngsters on the floor after they have left the nest. In such cases squabs six, seven and often eight weeks old will receive on the floor some feed from the parents of younger squabs. In this way youngsters receive some help until they get past the delicate age.

Squabs that are left in the nest room a few weeks after they are weaned, seem to get a much better start and do much better after they are taken out of the nest room and put to themselves. One thing that benefits squabs by allowing them to remain several weeks in the nest room after they are weaned, is that they learn the location of the water fountain or trough and the feed boxes during the time when they are receiving some feed from the old birds. Youngsters often die for the want of water if transferred when too young to a pen where the watering arrangement is hard to get to, located in another portion of the room or of different construction than was used in the room they were transferred from. The best plan is to provide the same watering and feeding systems for each pen.

The best plan, especially with a large plant, is to catch and remove squabs from the nest room to the rearing rooms once a week, having a special time for same each week, taking out only a few of the largest and most thrifty ones from seven to eight weeks old,

HOW TO CARE FOR SQUABS AFTER THEY LEAVE NEST

As stated in my article, "When to Remove Squabs from Nest Room," squabs that are to be kept for breeders, should be left in the nest room with their parents until about seven or eight weeks old, at which time they should be removed to a separate compartment, where they can be given special care and attention. Young pigeons at that age are, as a rule, very delicate, easy to catch cold, and sometimes lose their appetite to such an extent that they become very weak and often die.

There are four necessary things to the successful care of a young pigeon. First, they must be provided with a room which has plenty of fresh air and free from drafts. The room must be at all times dry, warm in the winter and cool in the summer.

Special precaution must be taken to guard against colds in a climate where the days are warm and the nights are cool. Under such conditions the temperature of the room should be regulated by opening the doors in the middle of the day and closing them at night.

If the floor of the room is damp, it is best to place some low boxes around the wall or run a little shelf around the edge of the room for the youngsters to run on. Often there is a draft that can hardly be detected an inch or two off the floor, that will cause young birds to catch cold. They are very susceptible to a draft, and too much precaution cannot be taken to guard against it.

Second, a sufficient supply of good feed must be provided for the young birds. As a rule they are small eaters just after they are weaned, and unless a constant supply of rich, nourishing food is kept before them, some of the youngsters will not eat enough to keep them alive. One can well afford to feed birds at this age choice and more expensive food than is usually required for the reason that they will eat but little anyway, and the added expense for good food will be more than made up in the results secured.

A good variety of grain should be furnished so that if a bird does not like one kind of feed, there will be a chance of it liking another. Young squabs are very finicky when it comes to eating. Some will pick at nothing except white or light colored grains, while others will pass up everything but dark colored

feed. Some will try to pick all of the large grains such as large peas, while others will eat nothing but small grains. I have even seen them refuse to eat anything larger than millet. Therefore, a good assortment of grains is necessary, which should include a small percentage of hemp, and especially so in cold or damp weather when birds do not seem to eat freely.

The feed should be kept in a convenient place and not very far away from where the youngsters are in the habit of staying.

Third, a good supply of fresh water must be kept within easy reach of the youngsters. The water should be warm in winter and cool in the summer time. Hot water in summer is apt to give squabs a sour crop and if the water is too cold in the winter time, they will not drink freely of it. Water should not be allowed to stand any length of time in the squab house, as it draws impurities and young birds are very susceptible to ailments.

Fourth, a good supply of grit, oyster shell and charcoal must be kept within easy reach of the young birds. A mixture of one part salt and five parts charcoal, measured by weight, is a splendid thing for young birds. The salt will cause them to eat the charcoal, which aids their digestion and keeps them healthy. Salt will also make them thirsty and lots of water is very beneficial to youngsters.

A good plan is to sprinkle coarse sand or grit on the floor daily. They will find the gravel in this way, while if it is put in a receptacle they will not see it and are not apt to eat it if they do.

I favor the same nesting arrangement for young birds as for old ones (that is the double nest box system as is described herein), for the reason that it furnishes plenty of roosting places, and the birds that want to get back where it is warm can roost in the nest, while others prefer to roost out on the running boards. In this way the weaker and more timid birds have protection against the stronger ones and are not forced to roost on the floor.

A nest room, 8x10, with 40 double, 80 single nests, will amply accommodate 100 youngsters, and that is about as many as should be kept together.

Youngsters should be separated into groups, according to their age and strength. A good plan is to go around once a week

and take the stronger ones out and transfer them to a pen of older birds, and put in their place youngsters just taken out of the nest rooms. In this way the weaker birds will not be pushed back or fought from the feed and water by the older and stronger ones.

Until youngsters get to be about eight or ten weeks old, they should not be allowed to get into the fly pens, except in the most comfortable weather, and even then it is not necessary. On cold, damp days or extremely hot days, even youngsters three or four months old should not be permitted to fly out into the fly pens. They are going through their second plumage at this time and are very delicate.

Some successful breeders do not provide fly pens for birds until after they are old enough to mate, but you must understand that youngsters require plenty of light and fresh air. This does not apply to squabs while in the nest rooms with their parents.

Young birds that become very poor and thin should be separated from the stronger birds in the pen and be placed where they can be given special attention. I have found that a good sized box with a wire over the top is a good place for such birds, as it is warm and dry with plenty of light and fresh air.

One advantage of the box is that it can be moved to a suitable and comfortable place in the day time and put back out of the damp air at night. It is a difficult matter to doctor up young birds after they have once become sick and the best remedy that I know for same is to prevent them from getting in this condition by the proper care in advance.

WHEN PIGEONS GET OLD

The active working life of squab raising pigeons is about six years. Some birds will do good work until eight or ten years old, others will let up at five years and some even in four, so about the only way to tell the age when a certain bird will cease to be profitable is to keep a check on it. If you do not keep an absolute record of all your birds you can easily keep a record of the empty nests, and if you notice that certain nests are occupied right along, but do not contain eggs or squabs, you can soon locate the pair that claims the nest, and if that pair

doesn't go to work within a reasonable time you know there is something wrong.

In such a case I would advise that you first separate the pair and remate the hen with a young cock and the old cock with a young hen. The chances are each pair will go to work and do well; if not, one pair will probably go to work and you can separate the other pair, remate the young bird and make soup of the old one.

Sometimes old birds will let up for a period and then go to work again and do as well as ever. These non-productive periods generally take place after moulting and sometimes last until the following spring. Sometimes they get run down and get out of condition during the moulting season and then fail to get back into condition until spring. This is particularly true with a female that is being driven too much after the moult by the cock. In such a case it is best to separate her from the cock and give her a chance to pick up a little weight, then either mate her with the same or another cock.

Often the moult has just the opposite effect on birds. They start to gaining weight towards the end of the moulting season and soon get too fat and lazy to work. In such cases the best remedy is to underfeed them a little until they get down to normal condition.

The moult will often affect different birds in the same loft differently. Some will get thin and some too fat. So the same remedy cannot be applied to all the birds in a loft. Any that are too fat should be caught and put to themselves, and those that are not working for the want of strength should also be put to themselves when they can be given a little extra attention and a little richer feed.

If you conclude that you have birds too old to do good work, first try them out with other mates, then if they do not produce results, the only thing that you can do is to kill them or turn them out to rustle for themselves. You should, however, not jump at a conclusion, as many birds stop working from one cause or another for short periods, while if properly handled would be good squab producers for several years more.

INFERTILE EGGS

An overcrowded loft, improper nest arrangement, insufficient feed, or feed with too little food value, or improper loft conditions will all tend to cause eggs to be infertile. Often, however, it is the direct fault of the birds. Sometimes one or both of the birds are too old to be serviceable. Sometimes they are too young. The first eggs of a young hen are not apt to hatch and it is not a bad plan to throw them away after they have been set on a few days or a week. It is always good to give a young hen a little experience setting before she lays again.

Some breeders advocate giving a young hen other eggs in place of her first ones, but I do not think this an extra good plan for too often a young hen will not prove a good mother and it is just as well, therefore, to let her get a little older before requiring her to mother and feed squabs.

Infertile eggs can be told by the transparent appearance of the egg shell. If an egg looks clear after it has been set on a week it is infertile and should be thrown away before the parent birds have set on the nest long enough to create pigeon milk in their crops. (See article on "Pigeon Milk" if you are not familiar with same, page 90.)

CHAPTER XIII

RAISING PIGEONS FOR EXHIBITION PURPOSES

VALUE OF RAISING SHOW BIRDS

Raising squab breeders, such as Homers, Carneaux, Runts, White Kings, Mondaines, etc., for exhibition purposes, cannot be very successfully followed as a money making part of the business, even by those who breed and sell stock birds. It is true that winning blue ribbons is a valuable means of advertising along certain lines, but until the squab industry is followed by a larger percentage of the people, as is now true with chickens, the expense of that form of advertising is apt to more than offset the benefits received therefrom.

There is a certain amount of pride and satisfaction for any breeder of live stock or fowls to know that his stock is superior to others and he should know if it is inferior, which knowledge he will soon gain if he exhibits inferior stock. The spirit of rivalry which enters into all competition either for pleasure or profit, causes men to compete for ribbons, makes stock shows possible, and in turn are beneficial.

As long as there are standards covering squab producing breeds, and as long as it is difficult to produce birds that come up to the standard, the satisfaction of attaining success along this line, and the general knowledge to be gained is sufficient reward to justify the trouble and expense of exhibiting at pigeon shows, and, after all, what difference is there really in competing with squab breeding varieties or Tumblers, Jacobins, Pouters and other fancy breeds? It is well, therefore, that those who desire can raise breeders for squab producing purposes and at the same time birds of the same kind for exhibition purposes and succeed at both.

The method of producing utility chickens for show purposes has proven a great benefit to the chicken industry, and to that extent, it can be practiced successfully with squab and utility pigeons. A Carneau seems to be the most popular squab producing bird for show purposes. National and International

Carneau Clubs have been organized and standards adopted. There are also club standards for Runts, Maltese, White Kings, and Mondaines, etc.

As a whole, I would say that shows and exhibitions are a good thing for squab breeders and I would encourage more of it and advise that pigeon shows give space and inducements to exhibitions of squab producing varieties. The success of the "Fancy" depends largely upon the financial support of the shows and it would appear that pigeon show managers have made a mistake in the past by overlooking the squab breeders.

HOW, WHEN AND WHERE TO EXHIBIT

There was recently organized a National Pigeon Association which held its First National Show at Indianapolis, Ind., and Second National Show at Oakland, Calif. This Association is organized on a large scale backed by the most successful pigeon men in America and will no doubt furnish the best place for squab breeders to exhibit their birds.

There are annual pigeon shows held in most of the large cities of the United States. These shows are generally held under the auspices of a pigeon club or association, which is generally to be found in each city of importance. Poultry shows usually have a pigeon department, and state and county fairs generally give prizes for pigeons as well as poultry.

I am strongly of the opinion that too much importance has been placed upon the value of solid colors and special marking such as solid red or solid yellow Carneau by the fancy Carneau breeder, who, on account of his association with pigeon shows, has gotten up the squab breeders' classifications and premium lists, and too little importance has been given to type, size and other qualities and to the red and white Carneau, or yellow and white Carneau, which are the prevailing and original colors of the bird. This has had a tendency to keep some Carneau breeders out of the shows, for the reason that they had no chance to win with the class of birds they handle, and thereby an important feature has been overlooked, namely, the utility Carneau breeders. Should you desire to enter utility birds separately or in pairs, notify your club and they will likely provide such a class,

Another thing, by placing all red and all yellow Carneau as the most important, the general public has been educated to believe that such birds were the pure bred stock, and that Carneau with white feathers were either not full blooded or culls.

Some shows provide for White Carneau, which come under the same standard as the red or yellow, except white with orange eyes. There are Black Carneau, but up to the present time they are not very well developed.

What is true of Carneau is largely true of other utility varieties. Too much importance should not be attached to color. Size, type, carriage and other like qualities should also govern the winning points of utility birds. There are show birds of many fancy varieties which compete regardless of color and many in which color is of but little consequence. So why handicap utility show birds more than fancy show birds?

The majority of pigeon shows charge a small fee (generally 50 cents) for each bird entered, and award small cash prizes with ribbons and cups to prize winners. A premium book is generally published and circulated in advance of each show, which gives the different classes, prizes, etc. Birds for exhibition can be sent to the superintendent of the show and should reach destination one day in advance of the opening of the show.

Shipping crates to shows should be plainly marked with the owner's name and address, so the birds can be properly exhibited and returned as soon as the show is over. Those who desire to enter birds can secure necessary information with reference to the rates for shipping and returning of show birds from any express agent. They come under a special class and are returned at a reduced rate.

Before birds are shipped, however, to a show, entry blank should be received from the secretary, filled out, and entry fee remitted to the secretary when blanks are returned to him. This is generally required several days in advance of the show. All rules and other information can be secured from the secretary of the club giving the show or from the show secretary.

RAISING AND SELLING SQUAB BREEDING STOCK

This is a business of its own, separate and distinct from raising and selling squabs. It, however, can be run in connection with the squab selling business. The rapid increase of the squab

industry, and the fact that thousands of people are entering the squab business annually, has created a demand for squab breeding stock, which in turn has caused many people to enter this branch of the business unprepared and without special knowledge of what is necessary to success in this kindred industry. The results have been that many have effected their success along the line of squab breeding by accumulating a lot of birds which they saved to sell for breeders at a heavy expense, and eventually a loss on account of having to sell at a reduced price.

Like anything else, there is much to learn about this branch of the business that one would not foresee or appreciate until too late.

To start with, there is not the margin of profit in selling squab breeders as it might appear on first thought. There are many things to be reckoned with besides the expense of feeding birds from the time they are old enough to kill for squabs until matured and sold for breeders. There is a certain per cent of squabs that could not be sold for breeding stock on account of size, weight or color, which defect cannot always be determined at squab killing time; then a percentage of young birds die after they leave the nest, and before they learn to care for themselves.

It is next to impossible to distinguish between a male and female squab, and a person accumulating squabs for breeding purposes will invariably save more males than females, which is a total loss, as there is no demand for extra males.

The additional space or room for housing birds until they mate and can be sold is quite an item to consider, together with their care and time and labor it takes to segregate them into classes, and mating them up properly, but all these things can be mastered and coped with successfully by most any squab breeder.

The principal trouble comes in selling breeders, for even in the face of an increasing demand, it is hard to find ready buyers for breeding stock, and especially so for those who are not known and have to depend upon a limited means of advertising. It takes a number of years to build up an established business of this kind to such an extent that breeders can be sold at the proper age, at a fair price. The average purchaser of breeding stock would prefer to buy his birds from a well established breeder at an advanced price, than from some one who is in-

experienced, or not known, with no reputation to back him up. And this is quite right, for the reason that it pays to get good stock, at even a high price, rather than inferior birds for nothing.

Many breeders of squabs make a mistake by trying to raise and sell breeding stock. I do not mean by this that a few breeders can not be sold profitably by most any one in the squab business, but it is a mistake to figure on selling breeding stock to any extent, unless you have the experience, are known and are equipped to handle same.

The difference in the profit to be made on a hundred birds sold for breeding purposes at a year old for a fair price and what could have been realized out of the same number of birds had they been sold at four weeks old for squabs, is not very large, after reckoning the expense of feed, care, housing, advertising and all expense; but it is sufficiently large to make the business profitable, to one who is established in that line. And has, by years of advertising in magazines, by exhibiting birds, and through satisfied customers, built up a permanent business. But this is a slow undertaking, and one should give careful and due consideration before entering the business of selling squab breeding stock.

If you should decide to enter this branch of the business, I would suggest that you proceed as follows: First, start in in a small way, have a few letterheads printed with your name and address, and the kind of birds that you are going to offer for sale, and right here I would advise that you confine your business to one breed of birds only. If you have several breeds you certainly have one breed that is better than the others, or one that you are better equipped to raise. You can gain nothing by scattering your efforts, and, on the other hand, if you concentrate on a single breed your sale talks will be more effective and consistent, you will have to have fewer houses, a smaller number of assorting and breeding pens, and a smaller investment in breeding stock.

Next you should run a small ad. in a good Pigeon Journal. Poultry and other papers are all right for large breeders to advertise in, but will not pay the small breeder, as such ads. are more along the line of educational, and requires considerable time to mature them.

If there are any pigeon shows to be held near-by, I would recommend that you enter some of your birds in the classes that you are most likely to win in, and be present at the shows if possible, where you will meet people interested in the business, and thereby gain a certain amount of publicity. After the show you can use your winnings for advertising purposes, but I would caution you against placing too much importance on shows, and expecting too great or immediate results.

In selecting and raising the birds you expect to sell for breeding stock, it would be well to raise only a few more pairs than you expect to need for your own plant the first year, then increase your stock as you are able to dispose of same, which you will be able to do as you get better established and learn more about the sale of breeding stock.

Most every squab breeder has a few pairs of mated birds that he can spare without decreasing his breeding stock materially. It is a good plan, therefore, to carry a small ad. in the pigeon papers for the purpose of disposing of surplus breeders. But if you meet with material success along this line, it does not follow that you can go into the breeding business and immediately start to make money, for, as previously stated, the sale of breeding stock is a distinct line, and one that cannot be jumped into on short notice with any degree of success.

RAISING PIGEONS TO A STANDARD

Regardless of the nature of the business engaged in or to be undertaken, in order to attain success in any degree, it is necessary for one to familiarize himself thoroughly with the details and possibilities of that business and to establish an ideal condition towards which to work. The squab industry is no exception to this rule, and it is at all times necessary to work towards advancement in all branches of the industry and especially so to the improvement of one's breeding stock.

An ideal condition can never be attained. Each successful and enthusiastic breeder will raise the standard of perfection and his ideal as he advances. A perfect squab plant supplied with a perfect stock of birds that will produce a maximum number of perfect squabs yearly, therefore, can never be realized, but we can and should at all times strive for a higher grade of

perfection, even though we might at different periods surpass ideals that we previously hoped to attain. The improvement and perfection of a strain of squab producers can only be brought about gradually; it is not practical to undertake too rapid advancement, so care should be taken not to place our ideals too far ahead of present conditions. It is necessary, however, to fix a standard of perfection to work to, and then do only those things that will tend to bring the desired results.

In order to make money raising squabs, a necessary number must be produced annually from each pair of breeders. The



PRIZE WINNING CARNEAU

squabs must be of good average size, of a grade that will satisfy the buyer, and the amount of expense for feed and other necessities must be in keeping with the production. Then we must decide on certain points of improvement, such as light meated squabs, large breasted, well-matured and fat squabs at the proper selling age, and a uniformity in these qualities. To attain such a condition and results, we should improve the standard of our breeding stock, by first learning the size and shape and types old birds should possess, and then by eliminating from our breeding stock the poorest type birds, and those that are farther from the desired standard.

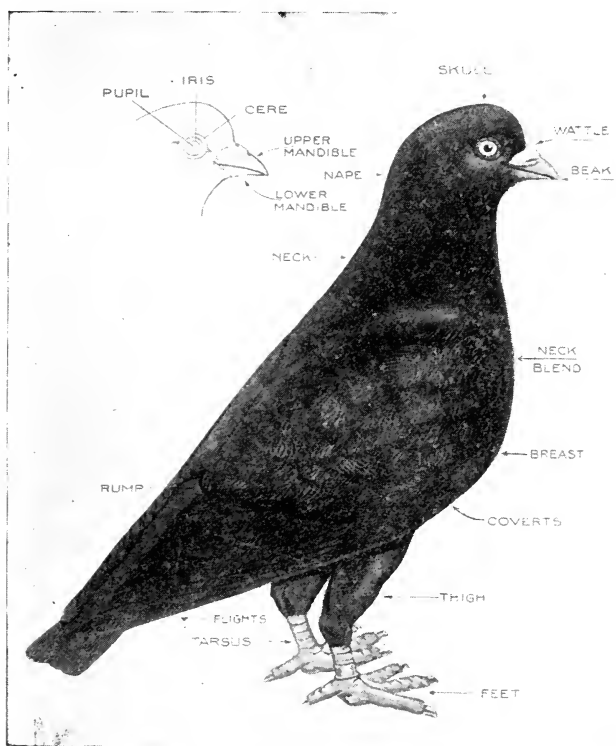
A flock of breeders can be improved materially, and bred up toward a standard by the method of elimination. To do this, as previously stated, one must have a fair knowledge of what constitutes a good breeder and the standard of perfection desired. He should have as perfect a check as possible on what each pair of his breeders is doing. Then he should discard or eliminate his slowest producers, the birds of the poorest types and shapes, those that are the smallest and also the overgrown and oversize birds. This method of elimination, however, should be gradual and considerable care and attention should be given to the question of results; that is to say, it is not always advisable to cull out the undersized, ill-shaped bird in preference to a better type one, for the reason that the poorest looking bird might be producing the best squabs and the largest number of squabs. As a rule, this will not be found to be the case, and by a slow method of elimination, now and then discarding an inferior bird, be it large or small, and replacing it with one superior in size, type nearer the ideal standard, one will be surprised at the progress he will make, and how, in a comparatively short time, he will improve the average quality of his entire stock.

Taking the Carneau or White King Pigeon as an example, hens that weigh less than 18 ounces should be eliminated as fast as they can be replaced with better birds, and cocks that weigh less than 20 ounces should be eliminated. Personally, I favor hens that weigh from 18 to 20 ounces and cocks that weigh from 20 to 22 ounces.

You will notice that Carneaux stand with their bodies at an angle of about 45 degrees. They have full rounded breasts, and

their legs set well back under their bodies. Their necks are an average length, not too short nor too long. They have broad shoulders, tapering back, giving their back a wedge or flat iron shape. Their legs are not short enough to give them a duck like appearance, nor long enough to make them appear lanky and ungainly. They have good, thick, substantial, yet graceful necks, and show marked vitality and vigor in their general make-up and carriage.

Carneaux nor White Kings that stand more horizontally, or more perpendicularly are not as good mothers or fast breeders,



LATEST CARNEAU IDEAL

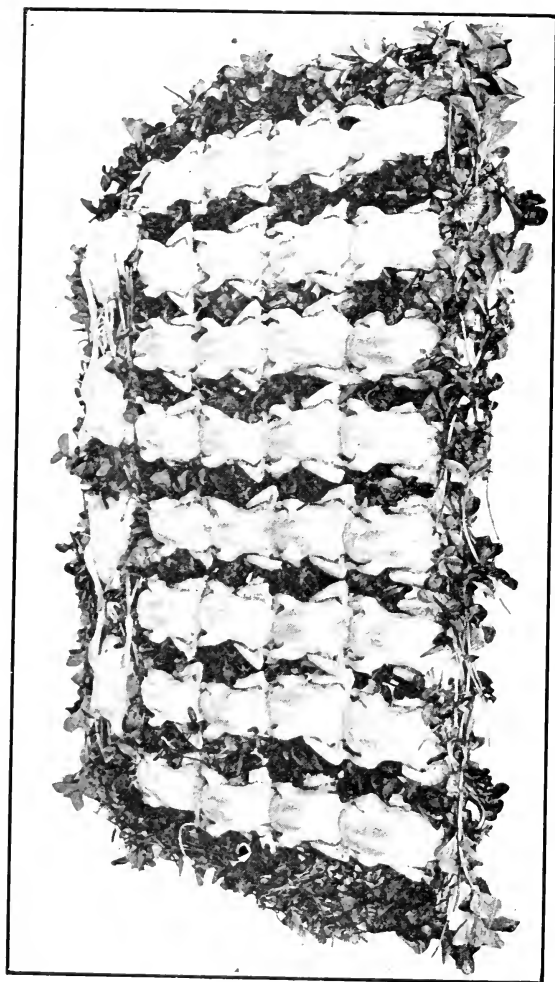
as a rule, as those that stand at a natural pose as these birds do, and the same thing applies to birds that have too long or too short bodies or that are about the same size at both ends. The wedge shaped bird with deep keel and full rounded chest is by far the best average breeder.

Oversized birds are just as undesirable as undersized, and this is true with all breeds of pigeons or fowls of any kind; yes, I will go farther, and say it is true with all animal kind, including the human race. Nature itself works to a standard. A tall man invariably admires a short woman, a large man a small



PAIR OF GOOD TYPE WHITE KINGS

woman, a blonde a brunette. A quick, irritable, impulsive person generally feels more at home with a slower, even tempered person, and if it were not for this condition the human race would develop into extremes. Likes beget like, and if like attracted like, in a short time one set of people would be extremely tall and another set extremely short—giants and midgets. One class would be very dark, and another class very light complexioned and so on. Now, what is true with people is also true with animals of any kind, including pigeons; so in the same breed of pigeons it would be possible to develop by selection and elimination excessive large or extremely small birds. Nature again has guarded against extremes by a safety first idea. In pigeons I can't say that they mate off in opposites; that is, that a small bird will naturally mate with a larger bird, but I do know that if two extremely small birds mate or two excessive large ones mate, their offspring will not be as plentiful as will be the mating of average sized birds, and I do believe that nature does by the rule of restriction in production maintain a uniformity. We can, however, assist nature, or gradually drift it to a desired result, determining in advance what we wish to accomplish along certain lines, and then accomplish our purpose by mating and remating birds of different types by selection and elimination to produce the desired type.



NEAT AND ATTRACTIVE DISPLAY OF DRESSED SQUABS

Three dozen Carneau squabs weighing a pound each, ready to be delivered to the cook for the final "heat of the relay." And then—well, you know the rest. If all of our products were of the quality displayed here, the market problem would largely be solved. It pays to make the squabs look neat and attractive, especially for private trade.

CHAPTER XIV

PREPARING SQUABS FOR MARKET

GENERAL APPEARANCE OF PRODUCT

The appearance of any marketable article has considerable to do with the price received for it, and especially so with an article like squabs that can be made to look nice, clean and inviting by a little care, or will appear dirty and undesirable if handled carelessly.

Squabs should be picked reasonably clean, and care should be taken not to tear the flesh. The head should be left on with the feathers extending about half way down the neck. The feet should be left on, but well washed and cleaned, with the feathers picked off from around the knees. Dry picked squabs will not only keep better, but have a much better appearance than squabs that are scalded before picked. The placing of squabs in cold water, for a few minutes, immediately after picking not only gives the squabs a plump like appearance, but will make the flesh appear much whiter and nicer, provided the picking is done before the animal heat has left the body.

For special private trade, it is not a bad idea to wrap each squab in wax paper, leaving the head and feet unwrapped. A specially selected carton is also an advantage when delivering to private trade.

The evenness in size is another point worth watching. Extra large squabs, or extremely small ones should be separated from the rest, as the latter will make the entire lot look smaller, and the former will not be appreciated. All of these things have a tendency in the right direction.

Good manners, neat appearance, with clean hands and feet, has its effect when delivering squabs to fastidious trade, and, in fact, with all classes of trade. Points of this nature are well worth considering, and often mean more for the success of a business than one can estimate.

HOW TO KILL AND PICK SQUABS

Squabs that are to be marketed should be taken from the nest at night, placed in coops where they will not be too crowded, then killed the next morning when their crops are empty.

They should be killed with a sharp knife by cutting the roof of their mouth and throat, through the beak. Then lock their wings and hang them up by the feet to bleed and pick. Squabs are marketed with the head and feet on. As soon as they quit bleeding take them down and pick dry before they get cold.

The object in locking their wings, by twisting them one over the other, is to prevent the dying bird from flopping and throwing blood over everything near-by; this should in fact be done before the squab is stuck. A good rapid picker takes but a few feathers at a time, pulls the feathers against the grain, so to speak, and by keeping this up in rapid succession is able to pick a squab in a remarkably short time.

About the most simple and best way to hang squabs up to bleed is to drive 8-penny nails in pairs, about 6 inches apart in a board. The nails should be driven about one-third the way in and about one-quarter of an inch apart, or just far enough to permit a squab's leg to go between. Another way is to fasten a row of double strings, 8 to 10 inches long, to nails driven into a board about 6 inches apart, hung up in a convenient place. Then form a simple half hitch loop and slip it over the squab's feet; before letting loose of the squab, lock its wings, as above described. A number of squabs in this way can be strung up, killed and bled at the same time. Then, as fast as one quits bleeding, take it down to be picked, and replace it with another squab.

Where several people are picking at the same time, it is best for one to do the killing and pulling out the larger feathers in the wings and tail, and the others do the balance of the picking.

As soon as squab is picked, its wings should be placed over its back, and thrown into a tub of cool water to plump. The grain or feed should be washed out of a squab's crop before it is packed or shipped or marketed, as the grain will sour and spoil the squab. Then, besides, they are not in a marketable condition with the crops full.

To wash the crop, hold the squab's open beak under a run-

ning faucet and allow the crop to fill with water. Then take the squab in the right hand, by the back and legs, and by a throwing motion towards the ground throw the water out of the crop, and with it will come the grain and other contents. If it does not all come out the first time, refill with water and repeat the process.

It pays to arrange a convenient place to kill and pick squabs, even though you have but a small plant and may only kill a few birds weekly. It will be found best to do this work indoors and a cool basement or wash room is an excellent place. A comfortable seat should be provided and all such arrangements should be made in advance.

PICKING SQUABS BY USE OF PARAFFIN

Much time can be saved and better results obtained by using paraffin when picking squabs, and as the paraffin can be used over and over again, the expense is a small consideration. Of course, all the larger feathers must be pulled out before the squabs are dipped. A little experience will teach you just how clean to pick before paraffining.

To prepare the paraffin for this purpose, put it into a kettle or receptacle, large enough to permit the dipping of a squab completely under the liquid. Paraffin should be warmed to a degree that will melt it into an oily substance, but care should be taken not to get it too hot, or it will partly cook and turn the squabs red and spoil them. The paraffin should be warm—not hot. A good test is to hold your finger in the melted liquid and if it is too hot for your comfort let it set and cool a while. It will cool very rapidly.

To apply the paraffin hold the squab by the head and feet, and submerge the balance of the body under the paraffin. Lay it on a table or board to cool a few minutes, and then dip again. Time can be saved by dipping several squabs in succession and then by the time the last is dipped the first is cold enough to dip the second time.

After the paraffin is cool it will turn to a sperm-like substance, then it can be pulled off the squab, and any feathers left on the squab will come with it. Then the squab should be thrown into a bucket or tub of water to plump. When squabs

are to be paraffined, they should not be put in water to cool until paraffined, as paraffin will not stick to wet feathers.

After a little experience in this method, you will become familiar with the necessary temperature to have the paraffin and about the time it will take the paraffin to cool before it can be peeled off the squab.

When the paraffin begins to get too thick for use, set the kettle back on the stove and heat it up a little, always taking care not to get it too hot. A coal oil, alcohol, or gas burner will furnish ample heat to melt the paraffin. Save the paraffin with the feathers in it, after it is pulled off the squabs, for later use; but before it is used a second time, heat and strain, so as to get rid of the feathers. At least one-third of the time can be saved in picking by the use of paraffin, and, as the operation is simple, it is no trick to learn how, and easy to perform.

SHIPPING DRESSED SQUABS

I recently noticed an unsigned article in a magazine on shipping dressed squabs, written by a Missouri squab raiser, and he stated the proposition clearly and covered certain points well. I will quote the letter, which is as follows:

"We received some letters from parties who are anxious to give the squab industry a trial, but who say that they live in small towns where there is no demand for squabs or that the city market at their location is low.

"These conditions are small factors, and can be easily handled. In fact, we know of no industry where the matter of securing the proper markets can be so easily handled. We mean by this that in most industries the near markets have to be depended upon exclusively, as it would cost too much to ship farther; and, also, the markets farther east, as a rule, do not offer the western producers enough difference in other lines of industries to make it profitable to ship in small quantities. This is the case with poultry of all kinds. But take the squab industry. A man with 200 pairs of pigeons will have six dozen of squabs weekly to sell. These will weigh 60 to 70 pounds. Properly boxed they will weigh about 80 pounds. The cost on 80-pound shipments from our plant to New York City is \$1.80, or this would be 30 cents per dozen.

"The cost of shipping to Chicago from our plant is \$1.15 on this size shipment. This would figure 19 cents per dozen.

"Our plant is located in Missouri, 175 miles west of St. Louis. This makes our plant about 1,500 miles from New York City, and about 500 miles from Chicago. You can see then that no matter where you live you can reach the best markets at a very small cost, and for this reason you need not depend on the local markets for the disposal of your squabs. Also, the farther the distance the lesser the express in proportion.

"If you live say 2,200 miles from New York, which would be 700 miles farther than our plant, the express on this size package would amount to only about 50 cents more than it would from our plant. The cost of expressage is figured a great deal less in proportion as to the distance it is to be hauled is increased. As the Chicago, Philadelphia, New York, and all the larger Eastern cities are always willing to pay large prices for squabs you can readily see the matter of getting a good market for your squabs is one that need not bother you. But most of the western cities are becoming good squab markets and we look for vast improvements in the next two or three years.

"Now as to the safety of shipping squabs long distances, will say that this is easily and safely accomplished. During the winter months all that is necessary is to pack them in a box and mark the box in two or three places as follows: 'Dressed Squabs—Keep in Cool Place.' Squabs so marked will keep in fine shape three or four days in the winter. In the summer they should be packed in ice. They will keep easily 60 hours in the summer when so packed, but if shipping in summer you should use the returnable containers, which have a chamber for the squabs and one for the ice. These will be sent back to you by the express company for virtually nothing. In no instance over 25 cents is charged for returning these containers. In summer shipment of squabs, where ice is necessary, there is a deduction of 25 per cent allowed by the express companies from the gross weight. For example, if your box, ice and squabs weigh 100 pounds, you would be charged for only 75 pounds."

SHIPPING SQUABS TO MARKET

Squabs are shipped alive on foot, dead, with feathers on, and picked, but if they are shipped any distance, they must be

packed in ice or shipped in refrigerating car or boat. Express companies allow one-third off in weight for ice. There are special air-tight receptacles, but the average shipper uses merely a large candy bucket, or box, packing therein a layer of squabs and then a layer of ice. If the distance is very great, however, it is better not to have the ice come in direct contact with the squabs. Very few buyers will accept birds with their feathers on. However, some prefer to receive them that way, and will pay about as much per dozen for them. If a customer of this kind can be secured, it is much easier to ship with the feathers on than to pick them.

When squabs are shipped alive, they must not travel very far. They should be gathered from the nest after feeding in the afternoon and be received before noon the next day. In this way, they start with their crops filled, and do not lose any weight in transit. A cool, dark crate or box should be provided to ship in, and not over a dozen birds put in a compartment, otherwise they will crowd on top of each other and smother. Squabs that are received alive should be killed immediately, as they will lose weight if not. You no doubt, understand that squabs do not know how to drink or feed themselves; hence, they cannot be held over without considerable loss, and after a couple of days they would deteriorate in quality as well as weight.

SHIPPING SQUABS A LONG DISTANCE

(Written by A California Breeder.)

"California breeders readily could secure prices that would be worth while if they would only organize an association. They should get together and then stick. In this state we have all kinds of associations, orange, chicken, egg, berry, rhubarb, apple, raisin, etc. All are successful and are the means of living prices, and profits go to the producer, not to the commission man. They stick together and sell through their associations. only, and by doing so they are successful. But the squab breeder seems unable to get the habit and then keep it.

"We organized about two years ago. We were then very green at the business. Handling squabs on a large scale was something new. We had to learn. This learning cost money, but we kept on. About six months ago we decided to incorporate, and things seemed to be started on the right road. We

were handling a large number of squabs, both supplied by our members and shipped to us from various points in our state, paying top prices, and were also the direct cause for the highest prices ever paid in the San Francisco market.

"After experimenting with several styles of shipping cans, trying to ship dressed squabs from California to Chicago and New York, we have at last solved the mystery with our latest shipping can with trays and ice chamber. Total weight, 64 pounds, and will last a lifetime. This can will hold from 15 dozen to 20 dozen dressed squabs, weighing 9 pounds average to the dozen. These cans also may be made larger or smaller.

"There is no reason why squab breeders should not have an association. This is possible if they will put on their thinking cap, reason a little, sacrifice, if necessary, as other producers have done. Other producers have succeeded, why not the squab breeders? Shipping cans such as above mentioned are most practical and can be made at a small cost."

HOW TO SHIP LIVE PIGEONS

A box or crate should be used when shipping live pigeons, according to the number of birds to be shipped and the distance they are going to travel. Any kind of a box will do for a few pairs that are only going a short distance, but if they are going to travel any distance, a feed box should be prepared, with a feed hopper, for the purpose and should have a can attached for drinking water. The expressmen will water and feed birds if arrangements are provided for that purpose, otherwise they are likely not to, although they are supposed to do so.

Birds will not eat nearly so much en route as they would otherwise, so a little feed will last for a long trip. I favor the plan of having drinking cups arranged so the expressmen can take the cup out, fill it, and set it back in place. Usually they have no way of putting water in except with a large bucket and invariably this causes them to pour the water all over the birds and usually the feed, which sours and makes the birds sick, unless a convenient way is provided.

When a large number of birds are to be shipped, a self-feeder, opened on both sides, can be built through the center of the shipping box, with a space four inches or six inches square left

at each end of the feed hopper, into which can be placed the drinking cup.

Care should be taken not to have any cracks near the bottom of the shipping coop for birds to get their feet or wings out of, and the coop should be high enough so the birds cannot stick their heads out of the top, for they are apt to get their heads knocked off by the expressmen pulling another crate or box across the top of the coop they are in. It is also not a good plan to have openings around the sides to cause drafts. Not over 15 or 20 birds should be shipped in a compartment, as they are apt to pile up at one end of the coop on top of each other and trample or smother the under birds.

HOW TO COOK AND SERVE SQUABS

If squabs are for home use it is just as well to cut or pull their heads off as to bleed them to death, and the former is the easiest and quickest.

After a squab is picked, singe the hair or fuzzy feathers off over a blaze, then wash in cold water; cut off the feet at the knees; cut off the end of the neck if it is bloodshot or extra long. To remove the entrails split the squab open at the back. Be sure and get the crop and its contents all removed; wash again thoroughly and let it stand in salt water over night if you have time. If not it can be cooked at once.

Squabs can be stuffed and cooked or roasted as you would a chicken or a turkey; broiled as you would a spring chicken or a quail. Stewed or fricasseed squabs are also good, but fried squab is the most common and besides being the most simple and easiest to prepare, will suit the taste of a majority of people.

How To Fry Squabs

The old fashioned southern way of frying a chicken is probably the best way to fry a squab. This method requires a lot of grease and, therefore, is not often used unless there are a number of squabs to fry. Although by this method a lot of grease is needed to fry the birds in, they are not at all greasy when cooked if the grease is kept hot.

Take a kettle of grease and let it get extra hot, then cut

your squabs in halves as you would a spring chicken and drop them into the hot grease. There must be enough grease to cover the squabs completely just as you would fry doughnuts. You can put in several halves at a time and let them remain until thoroughly done, which will only require a few minutes if the grease is kept hot enough. Serve on a platter or individual plates while hot.

Another way to fry squabs is to first parboil them, then pour off the water; add a little lard or butter and fry quickly over a hot fire. While squabs are not good unless thoroughly cooked care should be taken not to overboil, as they are very tender and will fall to pieces if over-cooked.

Squabs can be fried without parboiling, but it takes a little longer to get them done all the way through. If you desire, you can roll them in flour, corn meal or batter before frying. The majority of people like them the best without.

Still another way to fry squabs is split the birds open in the back, flatten them out well and lay face or open part down in a skillet with enough lard or other grease to keep from burning. Place a cover over the birds that is a little smaller than the skillet, weight the cover down with a flat iron or other weight and let cook slowly until well done; then take cover off and increase the heat for the purpose of browning the squabs, turning them over for each side to brown.

Squabs Scalloped

Butter a baking-dish. Arrange alternate layers of cold, cooked, sliced squab and boiled macaroni or rice. Pour over Tomato Sauce, cover with buttered cracker crumbs, and bake in a hot oven until crumbs are brown.

Squab Souffle

Take the breast meat of several squabs; remove all skin and sinews, chop very fine. Put the chopped meat in a skillet or stew-pan, add some whole spice, a little chopped parsley; salt and pepper to taste; stir it until it boils; allow it to cool a little; add yolks of three eggs beaten to a froth and stir well. Turn into a baking-dish which has been well buttered and the bottom covered with fine cracker crumbs. Bake in a very quick oven. Serve with sauce.

Squab Pie

Clean well, inside and out, one-half dozen squabs and split them in half; put them in a saucepan with about two quarts of water; when it boils, skim off all scum that arises; then add salt and pepper, a bunch of minced parsley, one onion chopped fine, and three whole cloves. Cut up half a pound of salt pork into dice, and let all boil until tender, using care that there be enough water to cover the birds. Thicken this with two table-spoons of browned flour and let it boil up. Stir in a piece of butter as large as an egg; remove from the fire and let cool. Have ready a pint of potatoes cut as small as dice, and a rich crust made. Line the sides of a buttered baking-dish with the crust; lay in the birds, then some of the potatoes, then birds and so on, until the dish is full. Pour over the gravy, put on the top crust, with a slit cut in the center, and bake. The top can be ornamented with pastry leaves in a wreath about the edge, with any fancy design placed in the center across the slit.

Old Pigeon Pie

Take half a dozen pigeons; stuff each one with dressing, the same as for turkey; loosen the joints with a knife but do not separate them. Put them in a stewpan with water enough to cover; let them cook until nearly tender, then season with salt and pepper and butter. Thicken the gravy with flour; remove and cool. Butter a baking-dish, line the sides with a rich crust. Have ready some hard boiled eggs, cut in slices. Put in a layer of egg and birds and gravy until the dish is full. Cover with a crust and bake.

There are many other ways squabs can be cooked, such as squab croquettes, cold squab loaf, squab a la King, etc., but there is no way as simple and convenient as frying them and, if properly fried they are hard to beat.

EDUCATING THE CUSTOMER TO GOOD SQUABS AND PRICES

Eating squabs in America is a comparatively new thing, and the sale and consumption of large squabs particularly fitted for the table is newer still. There are many people throughout

the country that do not even know what squabs mean, and many more who do not know that there is a difference in the size and flavor of squabs. Their impression is, that a squab is a young pigeon such as are raised by boys, or fly loose in the barnyards of the farmers. Squabs, therefore, do not appeal to them very forcibly, but if such people were actually acquainted with the real commercial squab of today, they would be eating it and singing its praise. There is great room for development, therefore, along the line of education in all towns and cities of the country.

There are many families in every community who would buy squabs at good prices at regular periods, if they but knew the delicious food value of high-grade squabs. One thing that has been a setback to squab eating, is the practice of cheap restaurants and hotels in serving poor, inferior squabs, or even old pigeons as squabs, and this, I am sorry to say, is often not confined to the cheaper restaurants and hotels, but it is sometimes practiced by high-grade places. The public is not sufficiently educated to know what they should get when they order a squab. They see it on the menu, order it once, do not find it to their liking, and forever after are firm in their belief that squabs are not very good to eat. But if these same people could be induced to try a real squab of good size, killed at the right age, they would be surprised at their past ignorance in this line.

About the best way for a small producer of squabs in an outlying district to establish a good squab trade, is to make a special effort to get some of the best families in the community to try a few of his squabs, even if it is necessary to give them the first supply. The fact that the Orthodox Jews do not eat pork, make them splendid squab customers. They are particularly fond of ducks, geese, and other fowls that carry considerable fat and take readily to squabs. Then, as a rule, the Jewish people in small towns and villages are fairly well to do, and can afford to pay good prices for what they desire to eat. In working up a private trade for the sale of squabs, therefore, it is well to go especially after the Jewish trade.

Another good means of creating a squab trade, is to dress them real nice, and leave them at a local market to sell. If the market will not buy them outright, leave them there on consignment, with instructions that they be sold to the best and

most particular customers, even though the price is to be small, after which it can be readily raised to what it ought to be.

Another good method is to inquire ahead of any prospective dinners or banquets to be served publicly or privately, and arrange for squabs as a part of the menu, even though the arrangement is to be made at a sacrifice in price. The principal thing is to get the people to eating squabs at some price, and then it is only a short time until they will be paying fair prices.

It is folly for one to believe that he can start in the squab business and find a ready market for his product, without some pioneer and educational work. This is where many beginners meet their first discouragement. With the start they do not raise enough squabs to justify them to ship to an established market in the city, so they try to peddle them around to local markets, hotels and restaurants, and, to their disappointment, are either offered a very small price, or no price at all. Then there is another phase to the question and that is, where there is already an established demand at a good price, buyers will take advantage of beginners by offering him a very small price for his product, and often will state very positively that it is all squabs are worth. It is a bad practice, therefore, to wait until you have squabs to sell before looking out for a market, and it is better to distribute them around to private families and, thereby create a demand, than it is to try and peddle them out to small hotels or markets.

Many physicians would recommend squabs for their patients, if they knew where they could be secured; thereby another line of trade can be supplied. It is often necessary, however, to educate the physician to the real merits and value of squab meat, the same as other inexperienced people. The average doctor in the country believes that a squab is a small, dark meated fowl that weighs about one-half pound. To convince him otherwise, it is only necessary to serve him with a real squab.

Good, well fattened squabs will readily bring from private trade from 30 to 60 cents each, according to weight, and the education of the customer and his ability to pay. Ten pounds to the dozen squabs after dressed would bring from 50 to 60 cents each at private trade. The same squabs served at the best hotels and cafes in the cities bring from \$1.00 to \$1.50 each at retail.

CHAPTER XV

CONSTRUCTION OF SQUAB HOUSES

SQUAB HOUSES I HAVE SEEN

There has been more development in scientific farming and stock raising along practical lines the last fifty years than during the preceding five hundred years. This has been chiefly due to the education of the producing classes brought around by the improvements in travel and the transportation of thought.

It is no longer necessary for one to acquire all of his knowledge through personal experience as it was in time gone by when each man's world was bounded by the horizon. It costs money and requires time to experiment. Therefore, if a hundred men can profit by the experience of one or ten thousand men by the experience of a hundred and each more or less by the experience of the whole, much money, time and labor can not only be saved, but improvements will come that much faster for thoughts and ideas grow as they travel.

The squab industry is comparatively new and there are many squab raisers whose experience is limited by the knowledge they have chiefly acquired through their own personal efforts. As I have made a study of squab raising for years and have personally visited most of the squab plants, both large and small, throughout the United States and Canada and have made it an object to compare the methods of the different breeders, I feel that the information so gathered should prove valuable to others.

By comparing the success of one breeder with another along with his methods I have been able to determine, at least to my own satisfaction, the cause of success or failure. I have found that most every breeder possesses ideas of his own which are detrimental to his success and others that have considerable merit. Then, too, in almost every plant I have been able to obtain an idea that I could put to some value. If not direct, I could couple it with an idea that I got somewhere else and by improving the two combined work out something of great value.

In other cases I find large successful squab breeders were

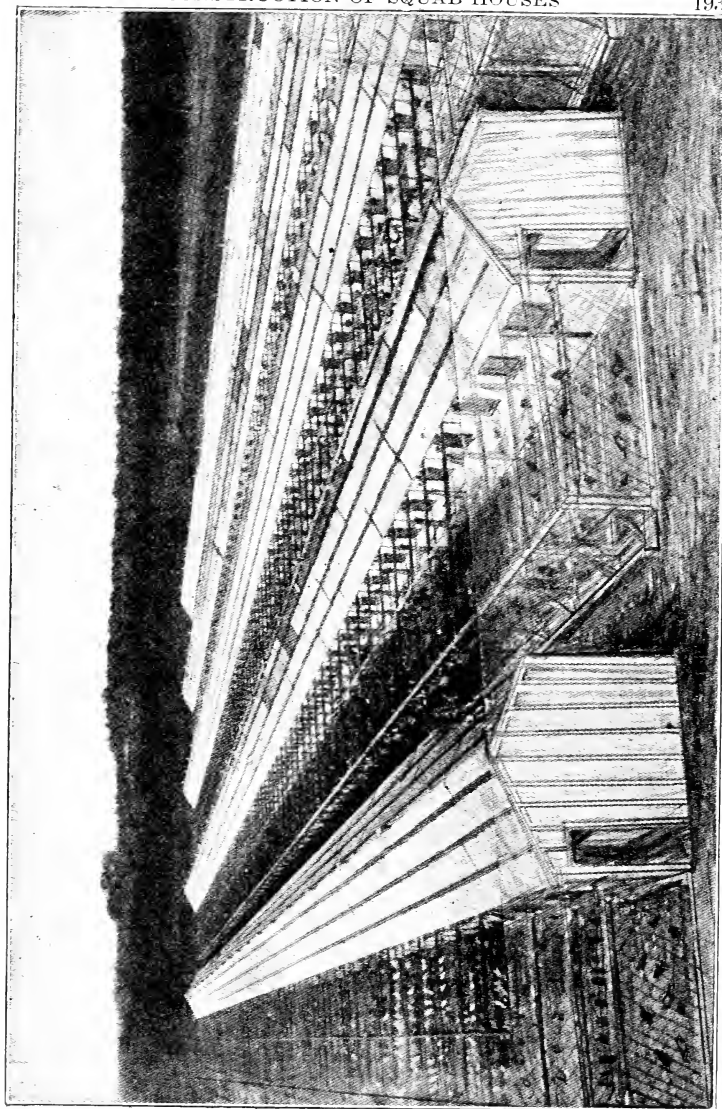
following a few old ideas that were costing them a lot of time and money. I propose, therefore, to give the reader the benefit of my experience that I secured and thereby assist him in making an inexpensive short cut to success.

Most of the large plants in the East and in New England, particularly, build their squab houses with an aisle to the rear of their nest rooms and with a solid wall or partition between the aisle and the nest rooms. In each plant I visited of this design I noticed the birds were unusually wild. They would start flying off the nests and out of the squab houses into the fly pens the minute we entered the building and would stay out for some time after we came out. In these plants I always noticed a lot of cold, deserted nests and eggs. In one plant where the partitions between the aisle and nest rooms were of wire so the birds could see us as we passed along the aisle they were not so wild, and it was here that I got my first idea of a wire partition between the aisle and nest rooms. Previous to that I had built my front aisle with a partition of solid wood between the aisle and nest rooms. Since then I have wondered why I went to the expense of building a solid wood partition when a wire partition was better in every way and much cheaper.

The objection to having the aisle in the rear of the nest rooms is not only that it makes the birds wild, but it is awkward and unhandy.

Most of the New England plants have gates to their fly pens at the opposite end from the house so when they want to get into the fly pen it is necessary to go clear around in front, thus losing a great deal of time.

I quote below from a letter I received from the owner of a plant I visited near Boston which covers the difference between the front and rear aisle system complete in a few words. "Dear Mr. Eggleston: I feel very grateful for the suggestion you gave me this spring. Shortly after you were here I changed the plan of one of my houses and built the aisle in front and of wire instead of boards. This is going to cost me a lot of money because I like it so well that I am going to change all of my other houses. But I am sure I will gain back the expense of the change before the year is over. The convenience of your aisle plan of feeding alone is enough to cause me to change the aisle



to the front. After trying your nest system for three months I wonder why some one else did not think of it before."

In New York, New Jersey and along the eastern coast I found quite a few breeders had, in order to eliminate the evils of the aisle-in-rear plan, done away with the aisle entirely and put in doors from one nest room to another near the front of the house so they would enter each nest room near where the birds went out into the fly pen. In this way the birds would have to fly by them to get out. This method I found served the purpose fairly well of keeping the birds from flying out of the house every time one entered it.

The objections to this, however, are that the swinging doors bother the birds and the birds will sometimes fly by through the doors as you go in and thus get mixed with other birds in adjoining nest rooms. Then, some birds seem to persist in building their nests on the floor where you will have to step over them every time you enter the nest room. With this plan I noticed quite a number of nests on the floor near the doors, generally in the corner of the room next to the fly pen. Another objection to this plan, the door-in-the-partition plan, is that it takes a lot of time to go through several nest rooms and open and close a lot of doors.

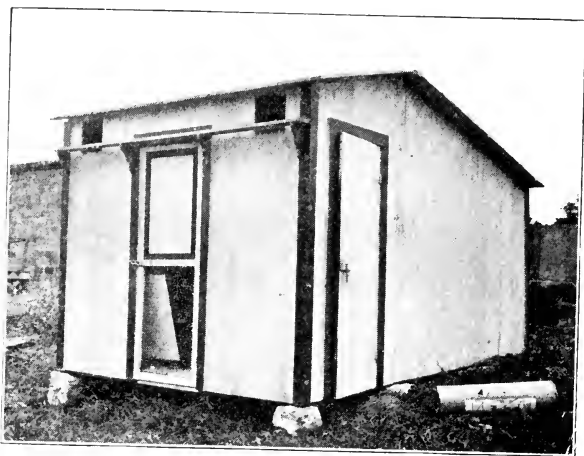
Squab breeders in many of the southern states and in California have adopted an open front squab house with the nest boxes along the rear wall and I have seen quite a few plants in the north built along the same plan except with a closed front. This plan generally includes the gate in front of each fly pen.

There are two principal objections to this plan. With the nests on the rear wall only, one loses one-half of his nest space, as twice as many nests can be put on two side walls as on one back wall. Then the birds are compelled to face a strong light as they sit on their nests, which they do not like to do as squabs do not do as well in a nest where the light shines directly on them as they do in a nest on the side wall where the nests are darker.

By having the nests on the back wall and the door in front when you enter the nest room every bird on the nest sees you and if you start towards them they all think you are going to bother them. It is hard to catch a bird with such a plan for banding or other purposes as they are much more apt to fly off

the nests than when the nests are on the side wall. With the side nests you do not go directly towards the birds as you pass into the room and then they are partially hidden and if they see you they think that you do not see them.

When entering fly pens with the gate at the outer end I found that the birds will all chase out of the pen back into the nest room then as you go into the nest room they will all fly past you out into the fly pen causing more or less of a panic and



ONE-UNIT SQUAB HOUSE

Note that this is built on the aisle-in-front plan with overhead chute.

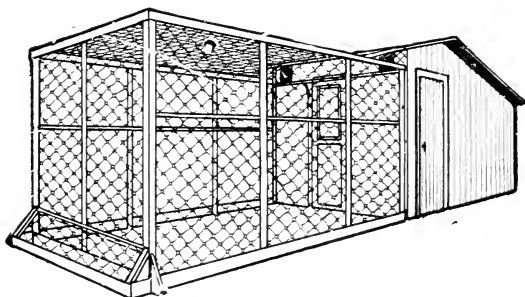
keeping the birds disturbed every time the nest room is entered.

The open front squab house is the proper thing for the South and the Pacific Coast States, but the house should be built with the aisle in front just the same. Instead of having only the partition between the nest rooms and the aisle made of wire both this partition and the outer front wall should be made of wire.

I laid out and superintended the building of a 32 unit squab house in Los Angeles built on this plan in 1914, and while I at first had some doubt as to the birds taking to the overhead chute readily I was quite sure they would find them, and they did immediately.

When both front walls are wire the light comes in below the chute and the birds can naturally see right through the wire into the fly pen. The exit chute being high up and not so easy to see, I questioned the birds finding them very easy, but the second day they were all out in the fly pens and all readily found their way back to the nest rooms. By this experience I learned that the aisle in front and the overhead chute will work as well with an open front house as a closed one.

The California and southern breeders have developed a good idea in fly pen running boards. They build them on either side which is far better than the old ladder-like arrangement that is so commonly used in the east and central states. The differ-



FLY PEN AND SQUAB HOUSE READY FOR THE BIRDS

ence in these two systems of fly pen perches is all in favor of the southern idea. The objection to the ladder plan is that it is hard to catch birds in a fly pen with one of these constructions in it. If the birds light on the top round it cannot be reached, or if they get back of the ladder on the ground they are hard to get to.

I was once visiting a squab plant and the owner had asked me to make any suggestion that I saw fit, and in reply to my suggestion that I liked the single running boards along the sides better than the kind he had as it made it easier to catch birds, he asked "Why should a person be catching his birds so much?" In less than three minutes he was in his fly pen trying to catch a bird to remove a tight band and was chasing it all over the pen and scaring all the other birds.

There are several advantages to the southern idea of fly pen running boards. They are less expensive, more easy to construct and the birds like them better. The short flight across the fly pen from one board to another offers good exercise for the birds and they like a flat surface to light on better than the edge or corner of a board that they have to light on with the ordinary ladder perches. It is easier to clean a fly pen that has the running boards on the side than where there is a ladder to clean under.

The western plan of a small, low fly pen is also better than the large, high pen used in the eastern states. The roof of a fly pen should not be over 7 feet high, $6\frac{1}{2}$ is the best height. It makes the birds wild to have the roof of the fly pen so high that they can fly over your head when you are in the pen. They are much harder to catch and this also makes them wild. As an example, you can put a chicken in a small coop where it cannot get out of your reach and you can pick it up at will without it getting frightened, but put the same chicken out in a big yard and see how hard it is to catch.

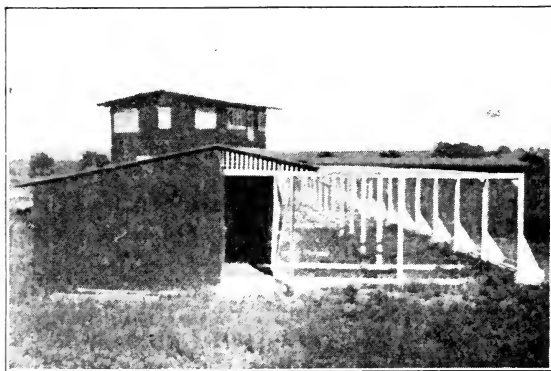
The door or gate to the fly pen should be through the squab house and there should be a door leading direct to every pen and no door from one pen to another.

Probably the greatest difference in squab house construction is the nest box system used by the different breeders all over the country. The majority of people starting in the business adopt the old-fashioned foot square, open front boxes and extend them from the ceiling to the floor. This is not a very satisfactory method and they set out to improve it and the result is that a lot of different plans have developed, and as most of them are improvements over the original each person is more or less partial to his own plan.

The first noticeable defect to the plain foot square nest system is that there is nothing in front of the nests and birds leaving the nests hurriedly are apt to drag the eggs and even young squabs out of the nests. With a four-inch board across the front of the nests the birds have a protection to build behind which has several advantages. If the birds leave the nests hurriedly they invariably step up on the four-inch board before starting to fly which makes it almost impossible to drag eggs or young out of the nests as they leave it.

The board across the front will keep the other old birds from flying right in the nests on top of its occupants. If a bird by mistake flies into a nest it generally starts a fight thinking that some bird has its nest.

Each pair of pigeons needs two nests as they have squabs in one nest and eggs in another. With the old plan several pairs will likely build in a particular section of the room occupying all the nests in that section. Then when a pair is ready to lay the second time all the adjoining nests are taken and as a result they generally lay back in the nests with their squabs, which is



END VIEW OF SQUAB PLANT—EGGLESTON PLAN

bad for several reasons, or they do not start to work until their squabs are old enough to leave their nests.

To provide a double nest some breeders in the eastern states use a nesting system known as the "T" double nest. This style of nest has some advantages, but the principal objection is that the squabs will climb over to the other half of the nests, when they get about three weeks old and bother the old birds on eggs, often breaking the eggs or crowding the mother bird off of them, thus allowing the eggs to get chilled. The old birds in order to avoid being thus bothered by their squabs will often build in another double nest which requires two double or four nests

for one pair. While the "T" system is more easy to clean than the old method on account of the front and middle partitions being removable, it is not as easy to clean as nests with removable bottoms.

The old method of building the nest boxes from floor to ceiling is a bad practice, the top nests are hard to get at as you cannot see in them unless you climb up on something and the nests down near the floor are also hard to get into and squabs will leave the nests near the floor before they should, which will make them poor and stunt their growth.

When I was a boy and lived in the country we had common pigeons and my father constructed long rows of outside nest boxes on top of a shed under the eaves of our barn; in front of each row of nests he nailed a four-inch running board the full length of the barn. Our pigeons took to these boxes readily but some old cocks took to them too well and claimed more nests than they needed. As a preventative to this we boys nailed some short upright boards, fencing off, so to speak, the nests into pairs allowing a short running board two feet long in front of each two nests. This plan worked like a charm and is where I got my first idea of the double nest plan, and from this I have developed the Eggleston Double Nest System. I find that the question of properly housing and providing practical and convenient equipment goes a long way towards the success of a squab plant and that too little attention is given these important matters by the average squab breeder.

The aisle-in-front plan with the overhead chute, the double nest system with nests on the side walls only, the proper feeding, watering and bathing arrangements coupled with the other modern and practical equipment I have worked out and perfected, such as the Eggleston grit box, tobacco stem holder and a collapsible mating coop attached to the wall in the aisle that folds up out of the way when not in use, will save more than half the time in caring for the birds and will produce much better results. The best of all it costs less money to construct and looks better when completed than any other plant that I have ever seen.

SPEED AND ECONOMY VS. OLD FASHIONED METHODS

The Eggleston improved methods will save much time and lumber. An inexperienced person can, by following these articles on construction, produce a more desirable and better looking job in less time than an experienced workman can build along old fashioned ideas. A carpenter or anyone handy with tools can do much better by these methods than by his regular way of doing such things.

These methods apply to construction on a large or small scale, whether for permanent or temporary purposes and although they may seem complicated owing to the detailed description, still a practical demonstration will prove that they are short cut, simple easy ways of producing the best results.

By following these plans, one will not only save in time, labor and material in building, but will also realize the saving of much time and labor every day thereafter to say nothing of the many conveniences and the better results obtained.

Adopt these plans in their entirety and you will obtain one-hundred per cent results with the least amount of expense and effort.

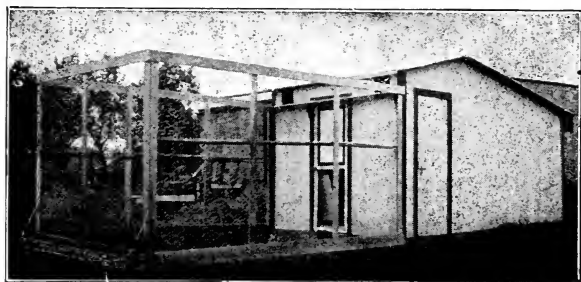
THE KIND OF A SQUAB HOUSE TO BUILD

Before constructing a squab house or rearranging a building for squab raising purposes, one should familiarize himself with the subject of squab raising and give some thought to the needs of pigeons and how a squab house should be built and arranged so as to be able to make it practical and efficient, or follow the plans of those who know how squab houses should be built, which is really the best way.

The majority of people who start into the squab business or who increase their squab plant will, in the course of a year or two, make several changes in the plan of construction. This is due to lack of knowledge as to what is the best plan. It is true that temporary arrangements can not always be made according to plans and often a temporary squab house is so gradually worked into a permanent one that it is hard to follow any definite lines in the way of construction, nesting arrangements, etc. But if the person in charge of the construction

of even a temporary place for pigeons has a knowledge of pigeons and their needs and is familiar with the best plans for squab houses and equipment, they will start their temporary arrangements along certain lines and then as they develop and extend, they will grow into a fairly well arranged squab house.

Considerable stress should be laid upon the plans and equipment of a squab house, even a small or temporary one, for the accommodation of birds in the way of the room they occupy, fly pen arrangement, and their nests, has considerable to do with the way they start to work, their health and general conditions and the number of squabs they will raise.

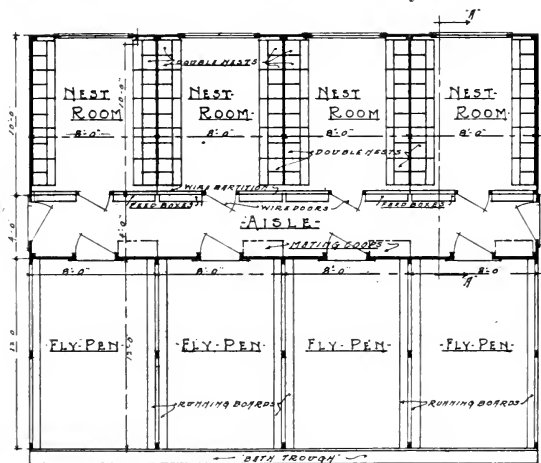


ONE-UNIT SQUAB HOUSE WITH GARAGE IN THE REAR

The average beginner and often experienced breeders are too apt to pass lightly over this and conclude that anything will do temporarily and that eventually they will make the necessary changes and arrangements. It costs no more and generally less to make the proper arrangements to start with, even though old lumber is used and an old building is utilized. To do it right takes less time, less material and makes a much more convenient place. These facts are multiplied when considering the difference between a newly constructed squab house along proper lines and an improperly constructed one.

In visiting squab plants, I have noticed that, as a rule, more lumber and material has been used and more work put in than is necessary to construct and equip a house that would be more satisfactory, less expensive and more pleasing to the eye. Why?

Because the builder undoubtedly did not give sufficient thought and study to his proposition and perhaps treated the subject too lightly. Right here I might add that it is natural for people to have different ideas regarding such matters and also for each person to think the plan or idea he has worked out is possibly a little better and superior to the other fellow's, for the reason that he knows why, as a rule, he favors such plans, and is more familiar with same than he is with the why-fors and the plans



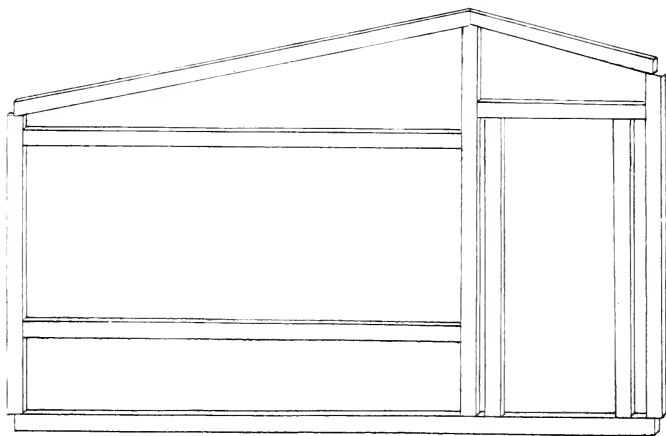
GROUND FLOOR PLAN FOR FOUR-UNIT SQUAB HOUSE

Note the aisle-in-front construction with door leading into nest rooms and fly pens opposite each other.

of others. The average squab raiser will disagree with you on the construction of a squab house, nest boxes, etc., because his is different.

There is so much difference in the plan of construction and equipment that there will be arguments by each user against all other plans except his own. There is undoubtedly a best plan and a best method of construction, and the best way to arrive at this is to find the various different things that are used by the majority of squab breeders and the things that will meet approval of these people, even though they might not be generally in use.

At the present time the writer has on his plant newly constructed buildings, built according to specially laid plans that have been worked out after years of practical experience and much thought on this subject, and without a single exception squab breeders of local and national reputation who have visited this plant, have approved of every detail of this construction. Some, however, have at first offered objections to certain ideas, because they used different plans, but when these things have been explained to them and proved by test and demonstration



FRAME CONSTRUCTION FOR END OF SQUAB HOUSE

to be correct, they have been quick to agree and approve of same. As an illustration: Recently a man visited the plant who has several thousand squab breeders, but has been using the single nesting system. In going out to the plant he stated that he did not believe the double nest system would keep birds from building back in the same nests with their young and that two pairs would frequently be found to occupy one double nest. That is to say one pair would build in one nest and another pair in the connecting nest. He also stated that by building the nest up off the floor 20 inches, and having the nest on two side walls, with a light going into the nest room from the front and

the rear, would not tend to keep birds from building on the floor. These were the three things that he was doubtful about.

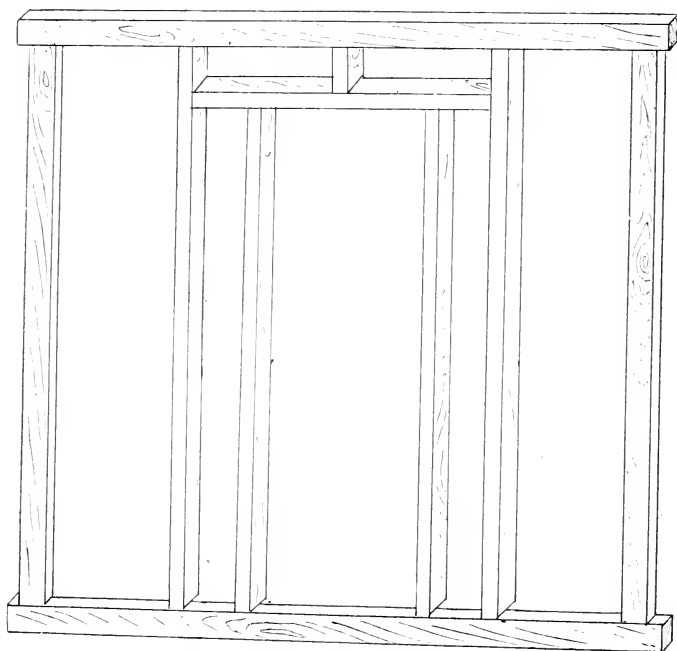
After going through the entire plant, nest room after nest room, and not finding a case where birds had laid back with their young, and only one case where two pairs had occupied the same double nest, and but a very few birds nesting on the floor, he remarked that he had learned more about construction of squab houses and nest boxes in an hour's time in examining this plant than he had during all the rest of his experience in the business, which covered several years' time.

Mr. Frank Lee Miles, president of the International Carneau Club, recently went through this same plant and volunteered to write me a letter expressing his approval of same.

Pigeons are not chickens. They require a different kind of a building and different arrangements, and if a person is not familiar with pigeons and squab raising, he should not conclude that a house constructed along the lines of a chicken house is what he wants, but should read up on the subject and familiarize himself before going to the trouble and expense of constructing a house that is not going to be practical. The average carpenter has no idea as to what is needed in the way of the construction of a squab house and even if you tell him what is wanted, he cannot build it economically for the reason that he is accustomed to constructing buildings along entirely different lines. He will use more material and lumber than is needed, take up more time, and the construction will be heavy, cumbersome and very impractical. As an example: If you show the average carpenter a picture of the nest boxes and tell him to construct same along that line, he will put up a row of shelves, running his boards horizontally, and then divide them off by short boards nailed in for partitions. He will then saw up his removable nest bottoms and slide them in on top of these shelves, making a double nest bottom, consuming unnecessary lumber and making almost an impossible place to clean; where, as a matter of fact, the long boards should be run up and down with cleats every 11 inches on each to slide in the removable nest bottoms, which plan is much easier to construct and requires less lumber and is what you want after you get it finished.

HOW TO BUILD A ONE OR MANY UNIT SQUAB HOUSE

One can build the house as a carpenter would by first putting up the frame work and then nailing on the siding or you can



FRAME CONSTRUCTION FOR FRONT OF SQUAB HOUSE

The above is for single unit construction. Where there are two or more units the construction is practically the same with the exception that the top and bottom runners extend to the middle of the last perpendicular 2x4 instead of beyond as shown in above figure, or the top and bottom pieces can extend right along the full length of the front.

make each side and ends on a pair of trussels and then set these sections in place and nail them together.

The best, quickest, simplest and cheapest way to build a squab house of either one or many units is to completely make the ends and all inner partitions, which are the same size as the ends

if the house is built on the Eggleston plan, before setting them up in place.

A single unit house should be 8x14 feet which allows for an 8x10 foot nest room and a 4x8 foot aisle. The aisle should be in front; that is between the nest room and the fly pen. A double unit house should be 16x14 feet which allows for two 8x10 foot nest rooms and a 4 foot aisle. A three unit house 24x14. A four unit house 32x14 and so on, adding 8 feet for each additional unit.

If one has the room it is much better to build a double unit rather than a single unit house to start with as the expense would be but little more and the house would be a better proportioned building.

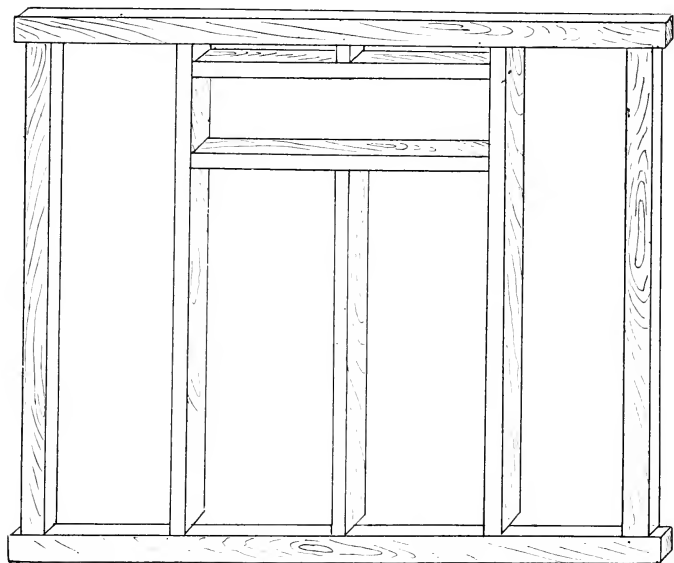
FIRST—Build the floor the size your house is to be, 14x16 for a double unit house for instance. To make the floor first make a frame out of 2x4 lumber, take two 2x4's 14 feet long and 8 pieces 15 feet and 8 inches long. Place the 8 pieces 2 feet apart and nail the two 14 feet pieces across the ends of same. Then cover this framework with flooring. Floors for additional units will be the same.

SECOND—Build the two ends as follows: Make a frame 6 feet high at back, 7 feet high in front, 14 feet across the bottom and 8 feet from the center of the gable to the ground. Make the gable directly over the point where the partition will stand between the aisle and the nest room. That is 4 feet back from the front of the house nail in a 2x4 from the center of the gable to the floor and provide for a door entering the aisle in one of the ends, depending upon the end the door will be most convenient for you to use.

Then nail in two 2x4 scantling horizontally between the upright 2x4 at the rear and the upright 2x4 running down from the center of the gable. The upper piece should be just under the roof at the rear and the lower piece should be 45 inches below the same. This will provide a space for a row of double nests (see article on how to build double nests) and a frame on which to nail the siding, provided the siding is put on up and down.

THIRD—Make a frame the same size and manner as the end frames for a partition between the squab rooms. Then set the two ends and the partition up on the floor 8 feet apart, that is

have the two ends on the outer edge of the floor and the partition through the center of the house. Spike the ends and partition frames to the floor, run 2x4's from end to end at the front and back top corners and another 2x4 along the gable from end to end as a ridge pole. Nail in additional rafters 2 feet apart



FRAME CONSTRUCTION FOR REAR OF SQUAB HOUSE

The above is for single unit construction. When more than one unit is desired, the construction is the same except the top and bottom pieces extend only to the center of the last perpendicular pieces instead of two inches high as shown in figure. This will allow nailing space for continuation of the top and bottom pieces.

and put on the roof which can either be shingle or roofing paper.

FOURTH—Run two additional upright pieces two feet apart in front on each side of where the door leads from aisle to fly pen; after which you are ready to nail on the siding. The siding can be put on up and down or horizontally. Tongue and groove flooring running up and down makes a good material

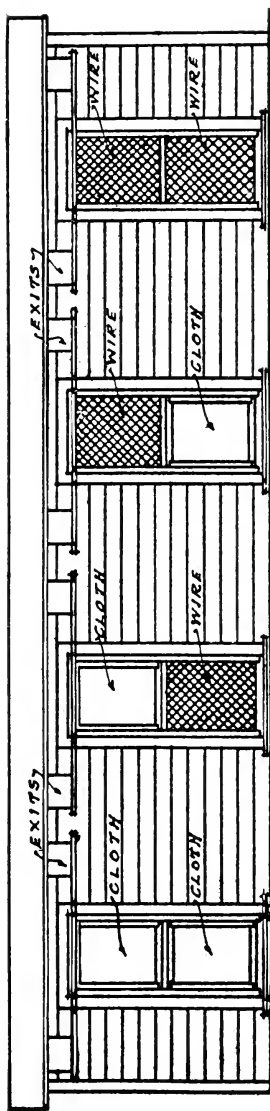
for this purpose, or drop or lap siding can be used. If the boards are run up and down, no extra pieces are necessary for the frame work, as there will be plenty to nail to.

There should be a door leading into each fly pen opposite the door in the nest room. Also a window at the back of the house in each nest room near the roof. By having the window high in this manner, it will furnish plenty of light and air and at the same time no direct draft will blow on the nests. On the outside of the window should be nailed one-inch mesh chicken wire to keep the birds in when the window is open and also to keep the sparrows out. Heavier wire can be used if there is danger of some one crawling through the window and stealing the birds.

If you are building a squab house with more than two nest rooms you will need two ends only but an extra partition for each additional room. If you desire to enlarge the house at a later date you can take out one end, put a partition in its stead and set it up at the end of the new section, or you can build entirely new sections and join them on the old sections.

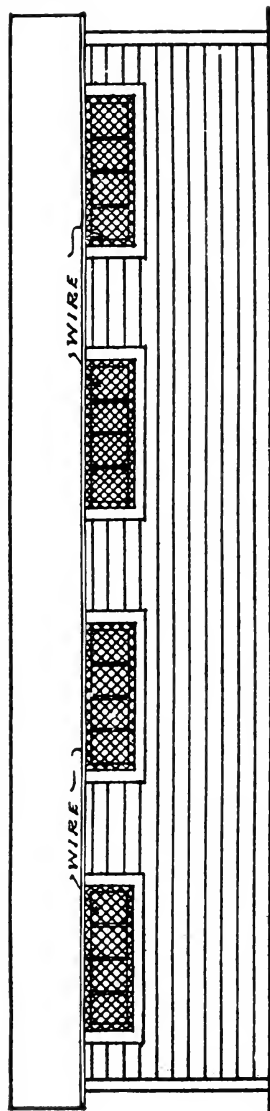
The front aisle partition between the nest room and the aisle should be made of 2 inch mesh chicken wire with a wire door 2 feet wide in the center of each nest room aisle partition with a slatted section 18 inches high and 3 feet wide on either side of the door at the bottom of the partition for pigeons to feed through, this slatted section will naturally not be full 3 feet wide on account of the space taken up by the 2x4 upright, the slats should be 18 inches long and one and one-half inches wide, not over one-half inch thick and placed one and one-half inches apart. Ordinarily lath will do if lattice or other material cannot be secured.

The wire on the aisle partition should be put on in two strips 6 feet and 2 feet wide respectively and long enough to go to full combined width of the nest rooms. To nail the wire on stretch it the full length of the aisle, across the door opening and all. Set in the door frames and nail the wire on the 2x4 uprights that form the door casings and to the door frames, then cut the wires between the door frame and the door casing, hang the door with hinges so it will swing out into the aisle, nail a strip on the door casing for a stop to keep the door from



ELEVATION SHOWING FRONT VIEW OF FOUR-UNIT SQUAB HOUSE

Note the canvas covered sash in the doors. (See cuts showing Ventilated Doors to Fly Pens.)



REAR ELEVATION SHOWING BACK VIEW OF FOUR-UNIT SQUAB HOUSE

swinging into the nest room, attach a screen door coil spring to the door and the casing to pull and hold the door shut.

I neglected to state that there must be a 2x4 two feet long nailed in at the top of each door to complete the door frame and a 2x4 about 2 feet 6 inches long nailed horizontally 17 inches above the floor to nail the slats on to. There should also be a one inch thick strip nailed on the floor on either side of the door for the same purpose.

SQUAB HOUSES FOR SMALL PLANTS

A squab house for a small plant can be arranged at a small expense and a small temporary place will produce fairly good results. I recommend the double nest system, however, even if there are only two pairs to be provided for. A corner in a barn loft, chicken house, garage, or most any outbuilding can be partitioned off with wood or wire and converted into a nest room with little expense. It is advisable, however, to have the birds where they will get some light, fresh air and not too hot in summer.

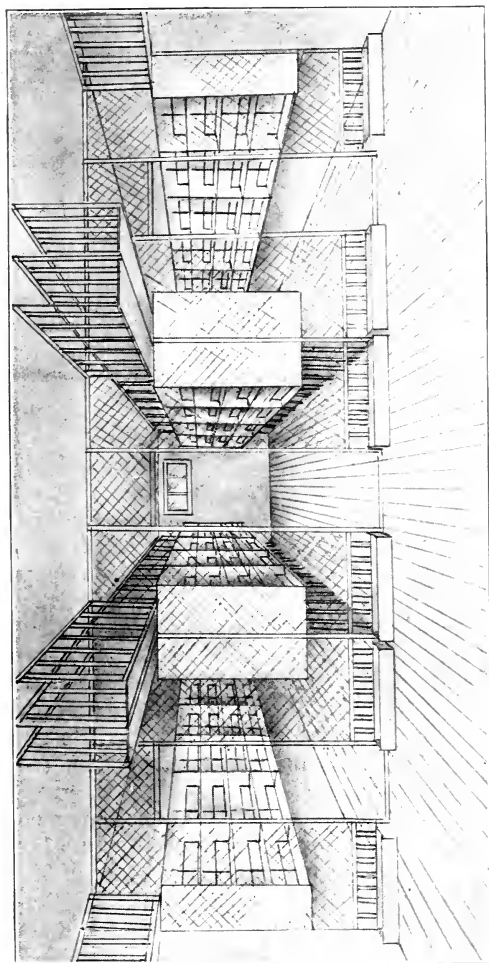
Pigeons can stand considerable heat or cold, but they do not work near as fast in close warm rooms, and if their place is too open or cold, eggs are apt to freeze, especially in a climate where they have zero weather. Artificial heat is not necessary and, in fact, it is a disadvantage.

Pigeons will generate enough heat from their bodies to keep their eggs and young warm, provided their nests are not exposed too much to the weather. A few birds can be kept nicely and will do fairly well without a fly pen, if they are confined in a building where they have plenty of light and air.

The same general plan should be followed with a small or temporary house as with a large one. (See articles "Squab Houses for Large Plants" and "How to Build a One or Many Unit Squab House.")

SQUAB HOUSES FOR LARGE PLANTS

The nest rooms and fly pens for a large plant should be built on the same plan and according to the dimensions as is described in the article on "How to Build a Squab House," except the num-



VIEW SHOWING FRONT WIRE PARTITION

The above picture shows a three-unit squab house with front aisle partition set up. Note the lattice construction at the bottom for birds to feed through and the aisle feed boxes in place.

ber of units that are to be in each house should be taken into consideration and planned at the start according to the ground space available, size of plant desired and other surroundings. A squab house with more than twelve units is inconvenient, as it places the center units too far from the points of entrance and the exits. With a twelve unit house it should be divided with six units on each side, leaving a space in the center between the two divisions of at least four feet for a passageway between.

A good plan is to divide a twelve-section house by leaving a space of about 6 or 8 feet between them. Put a roof over same and board up the front and back, thereby making a little room at this point. A door should then be placed in the front and back of this little room to afford a passageway and making it unnecessary to go clear around the house in order to get from the front to the back of it or vice versa.

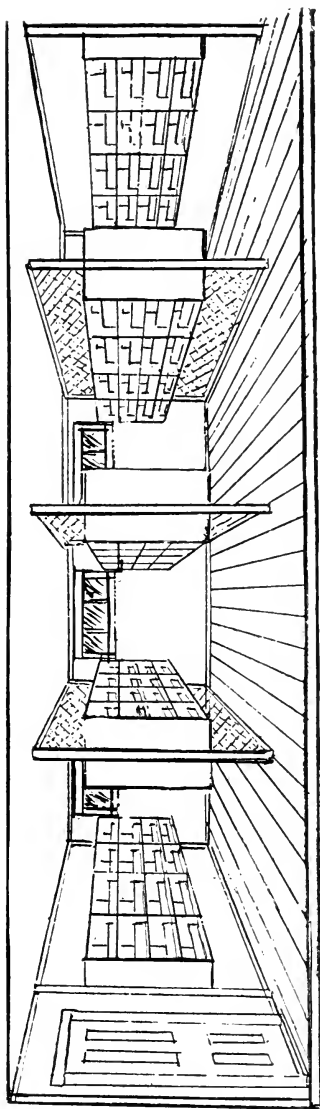
Any number of houses with several sections of 12 units each, can be built one in front of the other, leaving a space of about 20 feet between each row of houses, which will provide 12 feet for a fly pen, one foot for a drinking trough, and leave enough room to drive a wagon through between the front of the fly pen and the next house if desired. However, if ground is not available or scarce, the houses can be placed 16 feet apart, which will leave ample room for a passageway between the fly pen and house in front of same.

Each of these rows of houses should be divided into sections of six nest rooms each, with a space between as mentioned above, and it is best to make these spaces 6 or 8 feet wide and close them in as rooms. Any number of such little rooms will be very useful for feed, nesting material, picking rooms and various other purposes.

A ten unit nest room divided into sections, 5 on each side, with a space between, makes a very practical squab house, and 5 of these 10 unit buildings would take up a space of 90x170 feet, which would accommodate 2,000 pairs of birds.

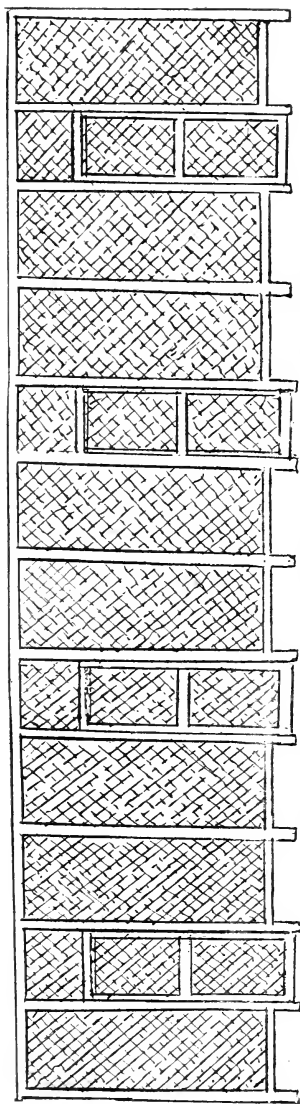
PREPARING GROUND FOR SQUAB PLANT

A location should be selected that will be convenient to water, where feed can be hauled to the plant in a wagon, and while it is not advisable to build too close to your residence, yet the



INTERIOR OF FOUR-UNIT SQUAB HOUSE

This picture shows the inside view of a four-unit squab house without the front aisle partition. Note the wire construction under and above the nest boxes between the partitions. This is better than solid construction as it furnishes better ventilation.



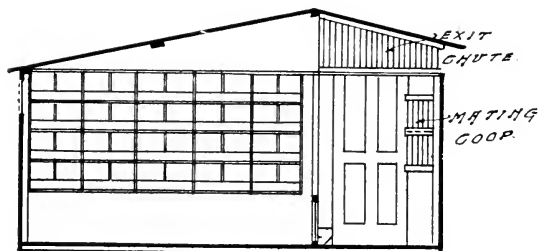
WIRE PARTITION BETWEEN NEST ROOM AND AISLE

squab house should not be too far away on account of thieves or meddlesome boys.

The size of the plant, whether you live in town or the country, and the location of other buildings should govern to a large extent the location of your plant.

You should select fairly level ground, if convenient, a space that will enable you to face your building to the south. An east or a north front is better than a west front, on account of the afternoon sun shining directly against the front of the building.

The ground should be level and graded up in a way the water



CROSS SECTION OF SQUAB HOUSE

Perspective view of aisle showing overhead chute and mating coops

will run off and away from the squab house and fly pen. If you can secure a load or two of gravel, it is a good plan to cover the ground for some distance around the plant with it. This will assist in draining the water off and in keeping the ground from getting muddy in bad weather. Cinders will answer almost as well, but gravel should be used in the fly pens, as cinders cut the birds' feet and do not furnish any grit for them to eat like gravel will. Cinders make a good thing to put under the squab house to keep the rats from digging under.

The ideal conditions are to have the ground around the house and fly pen sown with grass seed, the fly pen covered with gravel, and the ground under the house filled up with cinders and gravel or cement walks leading to and around the plant.

HOW TO BUILD A SQUAB HOUSE

There are many things to be taken into consideration when building a squab house, viz.: economy in cost of construction, economy in time, both as regards to the time saved in the construction and time saved in caring for the birds after the house is built. The welfare of the birds and the kind of a house that will produce the best results must also be considered. The house must be built so as to be warm in winter and cool in summer, and should look nice outside and in. This may not seem necessary, but a squab house can be made attractive as easily as not. It costs no more and generally less to construct something pleasing to the eye, so why not bear this in mind when building? If one builds along the lines described in the following paragraphs, the house will add to the beauty of the general landscape rather than detract from it.

AISLE-IN-FRONT PLAN

By having an aisle between the nest room and fly pen, a squab plant is almost doubled in efficiency, and this is especially true with reference to convenience and time saved in feeding, watering, cleaning and caring for the birds.

If you are not familiar with aisle-in-front plan, you cannot fully appreciate its advantages until you can, by actual test, try out and compare the front aisle plan as against houses constructed on other plans.

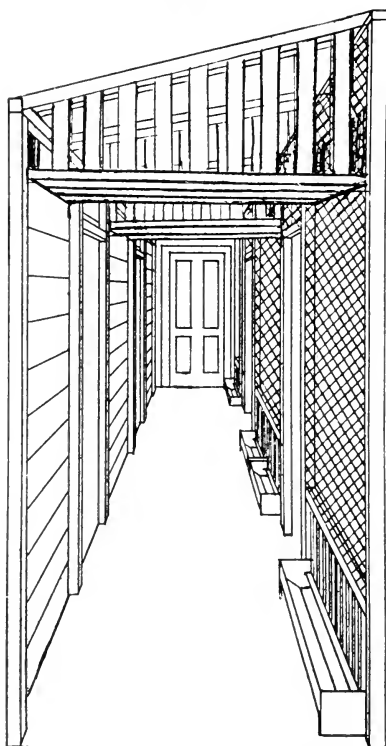
With the aisle in front, the birds will not fly out every time one enters the building. You pass between the birds and fly pen; they would have to fly by you to get out, so do not do so, and soon they get accustomed to people passing along the aisle and become very tame and gentle.

With the aisle in front the birds will mate, build their nests or feed their young while you stand in the aisle and watch them through the wire partition. This enables you to keep a perfect check on your birds and catch and band mated pairs with little trouble. This is especially true if your nests are on the side walls of the nest room and built on the Eggleston double nest plan.

With the aisle in front, one man can feed and care for more than three times as many birds than he could without the aisle.

With this construction it is not necessary to enter the nest room to feed. The feed boxes are in the aisles. This advantage alone is worth consideration.

The wire door between the aisle and nest room should be opposite the door leading to the fly pen, and vice versa. With the aisle in front the mating coops can be placed in the aisle, which will make them handy to the nest room. Sacks or bins of feed, grit and other supplies can be kept in the aisle conveniently. This is a special advantage with a small plant, as it saves building a feed house.

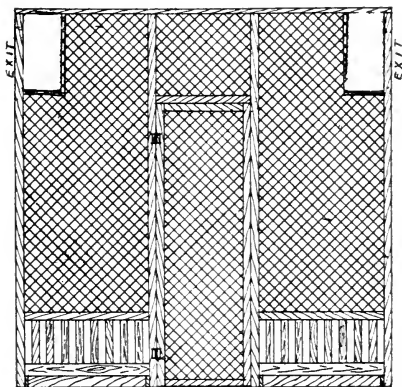


PERSPECTIVE VIEW OF FRONT AISLE

Note the overhead chutes and feed boxes in place.

With these and other advantages, and the fact that a house built with less work and cheaper than one with the aisle in the rear, make the advantages all in favor of this method of construction. In California and Southern States, the front wall should also be made of wire, which will make an open front house.

Even if you already have your house constructed, it will pay you to remodel it and run an aisle along between the nest room and the fly pen with a wire partition between the aisle and the nest rooms.



WIRE PARTITION SHOWING OPENINGS TO EXIT CHUTES

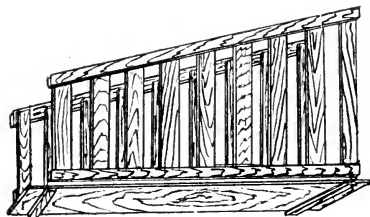
Front partition between nest room and aisle showing openings leading to exit chutes. Note feed boxes are in place on each side of door.

HOW TO CONSTRUCT OVERHEAD EXIT LEADING FROM NEST ROOM TO FLY PEN

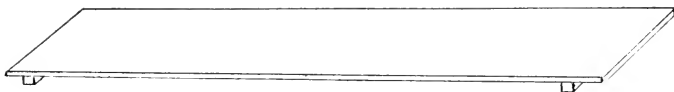
This passageway should be one foot wide and at least 8 inches high. The sides should be made of slats or wire, so birds will not build in it, and the bottom should be made of a 1x12 board and be removable, so as to be taken down and cleaned. The sides of the exit chute can extend clear up to the roof of the house. (See exit drawing.) If the top of the fly pen does not extend up to the top of the outlet, the wire can slant up a foot or so near the building. (See "Fly Pen" drawing.) The bottom

of the chute should be at least 6 feet from the floor of the aisle, to permit a tall person to walk under same. Six feet 2 inches is a better height.

To make the bottom removable, nail a small cleat across the under side of the 1x12 bottom, $1\frac{1}{2}$ inches from each end of same, making this bottom board about 2 inches longer than the aisle is wide, so that an inch will extend into the hole leading to nest room, and another inch extending into the hole leading to the fly pens. The cleats will prevent the board from slipping or falling down and the board can be taken down, cleaned and put back up easily. There should be two of these exits for each nest room, one leading from each side.



EXIT CHUTES SHOWING REMOVABLE BOTTOM



FLOOR OF EXIT CHUTE

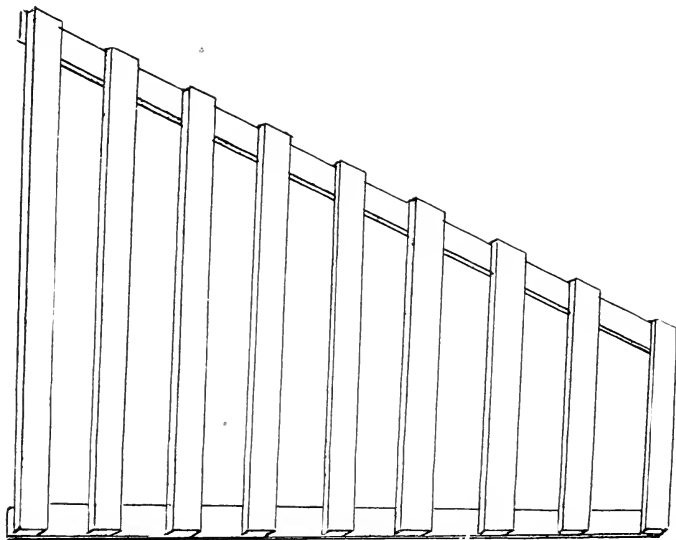
This floor is made removable for the purpose of cleaning

HOW TO BUILD A FLY PEN

The best and most practical size for a fly pen is 6 feet and 4 inches high, 12 feet long and as wide as the loft room it is to be used in connection with. Eight feet is the width of loft I advise, but a foot or two wider than that is all right, especially when the house is already built. Any space more than 10 feet for the width of fly pen or nest room is unnecessary and a disadvantage. Such extra space can be utilized for unmated birds, youngsters, feed bins, grit and nesting material,

If the builder of fly pens will follow these instructions carefully, and read them as he builds (as is advised when building squab house and nest boxes), he will find the instructions simple and easy to construct.

First make up as many frames out of 2x4 or 2x3-inch lumber, 6 feet 4 inches wide and 12 feet long, as there are to be ends and



SIDE OF EXIT CHUTE

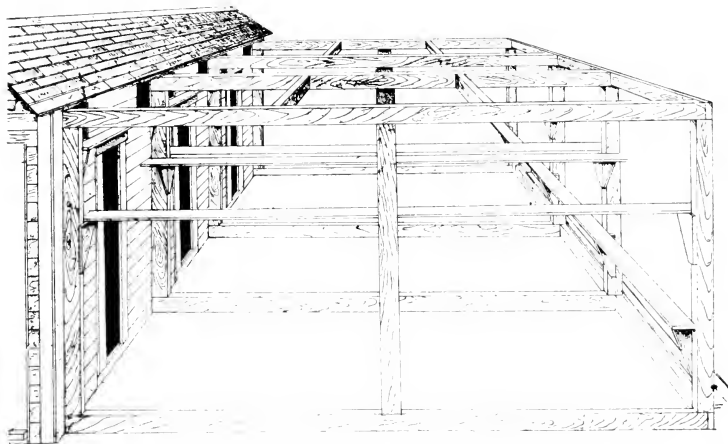
Exit chutes can be made with wire sides but slats are preferable.

partitions in the fly pen being built. That is to say, for a single fly pen make up 2 ends. For a double unit pen, 2 ends and 1 partition. For a 6-unit fly pen, 2 ends and 5 partitions.

What is meant by end is the length that extends out from the building. These ends should be made and braced across the corners and covered with chicken wire before they are set up in place. Ends and partitions are made the same way and are just alike.

If they are made 6 feet 4 inches high, they can be covered with a 6-foot strip of wire. Shingle nails are better and much easier to nail the wire on with than the little wire staples that come with the wire. Drive the nails in about half way, hook the wire over them, and then bend down.

After these frames are made, then put the ends and partitions



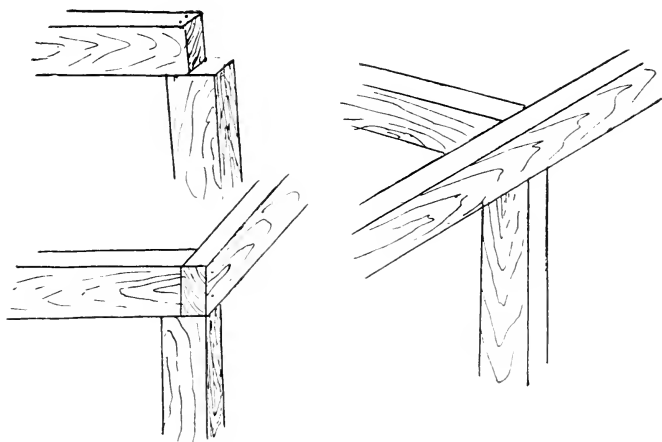
FLY PEN AND RUNNING BOARDS EGGLESTON CONSTRUCTION

You will note from the above drawing that the running boards are so arranged that a pigeon can reach the entrance above the door by three short flights. First from the ground to the front running board, then to the side running board and on the running board above the door. The cut shows the front running board extending through from one unit to another. To do this the wire between the units will have to be cut but short running boards can be put up in between the widths of each unit without cutting the wire. It requires fewer boards when extended clear through.

up in place against the squab house, 8 feet apart, then nail a 2x4 across the front at top and another across at the bottom the length of your fly pen, run a brace from the top center at each end to the top corner of the same unit.

These braces are necessary to keep the wire from bending the 2x4 at each end when wire is stretched. This will complete the frame work.

Then cover the top with 2 strips of chicken wire 6 feet wide and the front with one strip 6 feet wide. These strips should be run with the building. First nail one edge of the wire to the building, then the two ends, then put on second strip and nail the outside edge to the front of the frame, then the ends and then pull the two inside edges of wire together, and by the use of a 6 penny nail, twist the wires together, which is a better



CORNER AND CENTER POST CONSTRUCTION FOR FLY PEN

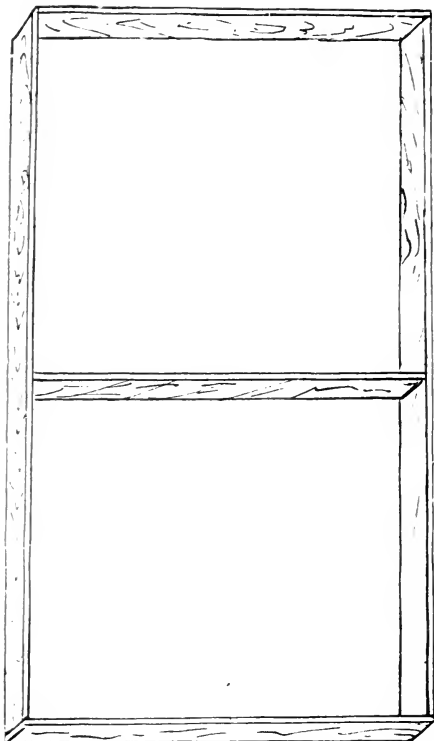
and quicker way than tying together with a piece of wire, as is generally done. Where there is more than one unit do not nail the top or front strips of wire to the partitions. If the wire is put on right by this method, it will be as tight as a drum with but little stretching.

There should be a door or gate leading into each fly pen unit. The best place to have these doors is from each nest room or the aisle opposite each nest room, but if this is not practical, place a wire gate outside near the squab house.

Always keep in mind when building your squab house that you are the one who is going to take care of the birds and therefore make it as convenient as possible.

HOW TO MAKE WIRE DOOR FRAME AND GATE

An easy and simple yet neat and durable way to make a wire door, a wire gate or a window or door sash to be covered with cloth, is as follows:



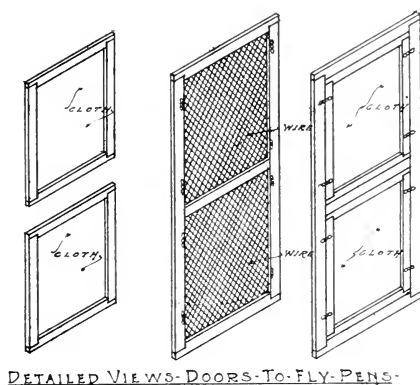
FRAME CONSTRUCTION—DOORS, WINDOWS OR FLY PEN GATES

Frames constructed as above when covered with wire need no additional bracing.

Take four 1x2 strips of lumber as long and wide as the door or gate is to be, allowing 2 inches off the two longer or side pieces, which two inches is made up by the thickness of the two shorter or end pieces lapping over same. Nail the two short

pieces across the ends of the long pieces with edges up or out, just as if you were making a box 2 inches deep. This is the catch part of the operation—most people will lay the strips down flat and nail them together that way, whereas the pieces should be stood on edge, which will make a smooth even frame.

To brace a door or gate frame saw off a 1x2 inch piece 2 inches shorter than the frame is wide over all and nail it through the center edges up or out the same as the outer pieces. Then stretch the wire over the frame and your job is ready for hanging.



DETAILED VIEWS-DOORS-TO-FLY-PENS-

VENTILATED DOORS TO FLY PEN

The above drawing illustrates the use of canvas or cloth covered sash to be put in single squab house doors in place of glass. This will furnish air as well as light and can be removed in warm weather. Small sash can be used in squab house windows instead of glass.

1x3 or 1x4 inch lumber can be used instead of 1x2 inch stuff, but in either case the edges should be up when the frame is laying down. The wire will brace the frame so all that is needed is a brace through the center to keep the wire from pulling the sides in and the same is true where the frame is to be covered with cloth. 1x2 inch lumber is heavy enough for most any door.

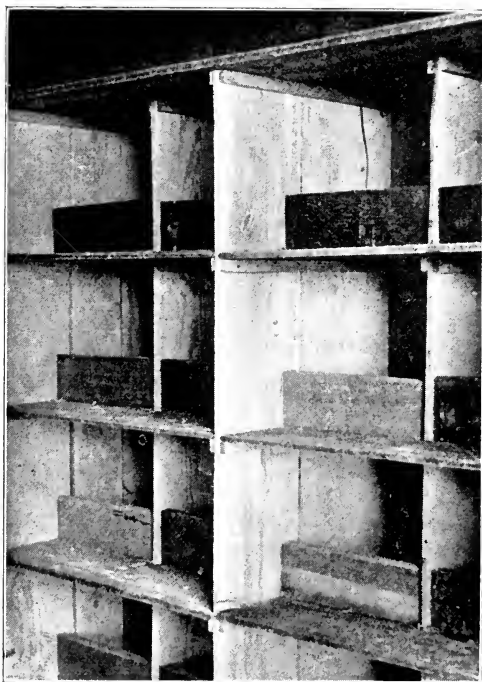
CHAPTER XVI

EQUIPMENT AND LOFT NECESSITIES

EGGLESTON DOUBLE NEST SYSTEM

The fact that leading squab plants all over the country are tearing out their old nests and replacing them with the Eggleston double nests more and more each year, is evidence that this nest system is the best.

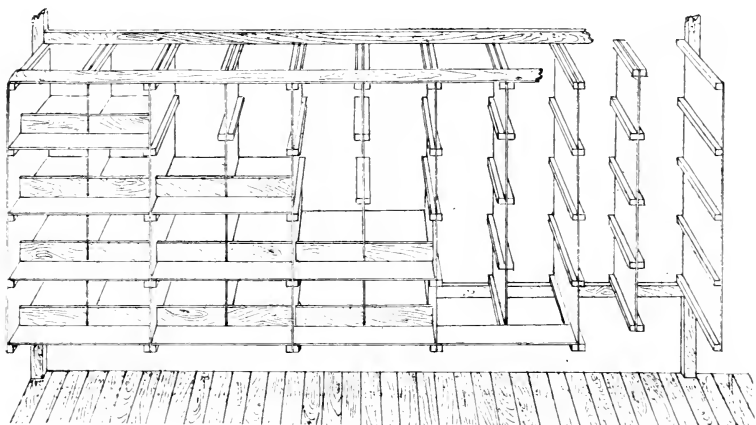
The Eggleston nesting system provides each pair of birds with a double nest, as is necessary for fast squab producing pigeons.



EGGLESTON DOUBLE NEST BOXES

Whether you are constructing a new plant or operating an old one, you should equip it with the Eggleston double nests. This system will pay for itself every year by increased squab production, to say nothing of the convenience in cleaning the plant.

Each pair of squab breeding pigeons require two nests as they lay and go to setting again before their squabs are large enough to leave the nest. By this system there are two nests connected



SECTION OF DOUBLE NESTS IN COURSE OF CONSTRUCTION

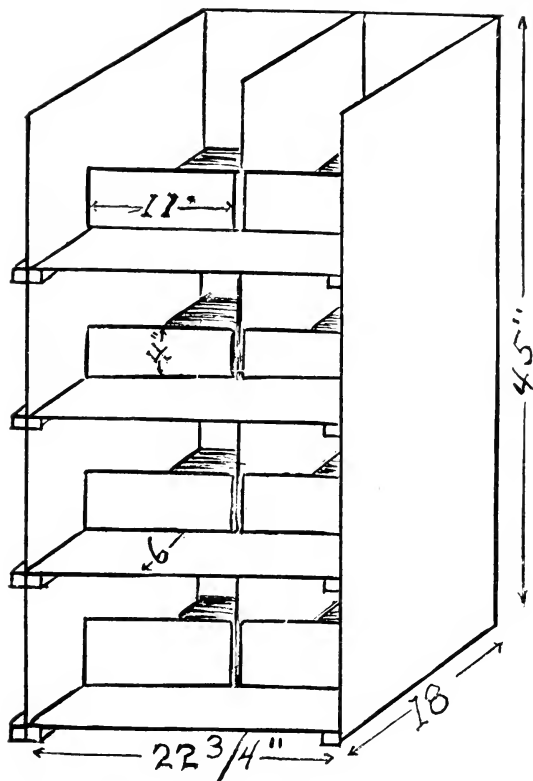
The top of the nests should be entirely covered with lumber when completed.

with a short running board, or porch, in front of them, with an upright board separating the running board in front of the next two nests on the same row. By this arrangement a pair of pigeons will claim two nests, and fight off other birds that light on the running board in front of their nest or try to build in the nest next to the one in which they are building.

There are various methods used for nest boxes—orange boxes, egg crates and other similar boxes are often used by stacking them on top of each other and nailing a 4-inch strip across the front of the boxes, which holds them together and makes a protection for the nest and squabs.

Some build a rack, or bench, 18 inches high, and then set the orange boxes or crates on top of the rack.

The best method is to build the nest boxes out of lumber and conform to the Eggleston double nest system. One-half inch



SECTION OF EGGLESTON DOUBLE NESTS

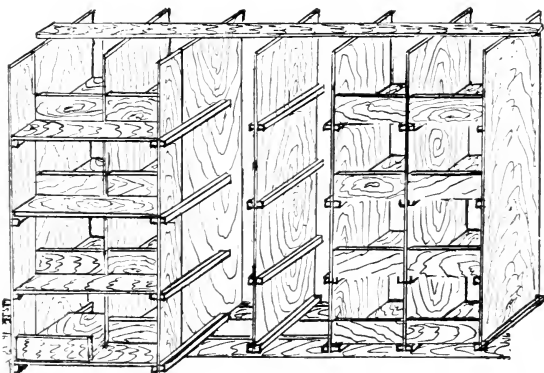
lumber is just as good as inch lumber, is much cheaper and a little easier to handle.

Nine carpenters out of ten will start to build these nests by running the longer boards horizontally like store shelves, and

then nail in the upright partition with short boards. Such methods are wrong. The upright partitions between the nests should be put up first, and the horizontal ones should be short boards, which slide in on cleats and form the nest bottoms and are removable.

HOW TO BUILD EGGLESTON DOUBLE NESTS

The Eggleston double nest is not only the best form of nest to use but one of the most simple to construct if properly done. Much speed can also be made if the builder will follow the plan here outlined.



ANOTHER VIEW OF EGGLESTON DOUBLE NESTS

Anyone who can saw off boards and drive nails can build the Eggleston double nest quickly and make a neat job. There are really but three separate pieces, viz: the cleated uprights, the removable nest bottoms and the short running boards or porches in front of the nest. All three parts are made separately before putting them up. If necessary, these parts can be made at odd times and even out of odd scraps of lumber. It is best however to order special lumber for the purpose.

The upright partitions between the nests are 45 inches long, one half inch or resawed lumber is just as good or better for this purpose. Rough or undressed lumber is also as good as

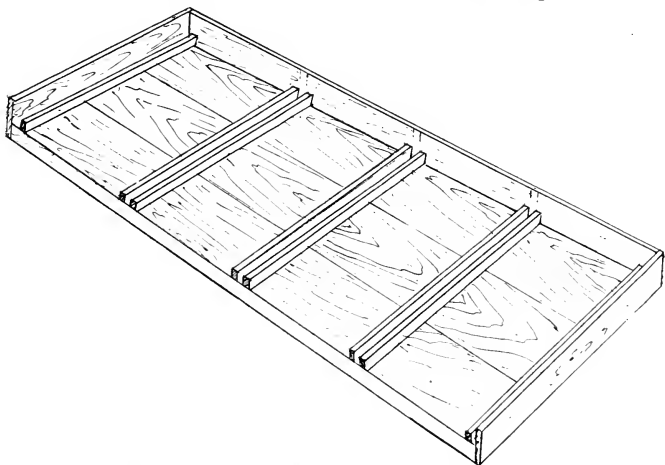
dressed lumber and will cost less if it can be had. Boards six inches wide are the easiest to handle. It takes three upright partitions for the first row of double nests and two upright partitions for each additional row of double nests. Each alternate upright partition must be 18 inches and 12 inches wide respectively. The upright partition must be cleated on both sides with five one inch cleats, 11 inches apart with the exception of the two partitions on either end which should only be cleated on one side. Cleats can be secured from most any modern lumber yard where they have an electric saw. They can be ripped out of $\frac{7}{8}$ inch lumber $\frac{3}{4}$ inch wide which is just as good as one inch square. One half of these cleats should be 18 inches long and the other half 12 inches long to correspond with the width of the upright partitions.

Cleats can be nailed on quickly by nailing two cleats on at the same time, that is by nailing clear through a cleat and the partition into the cleat opposite on the other side of the partition. The best way to do this is to make a pattern rack or device to hold the cleats in their proper place which will save measuring each time and enable one to make partitions exactly of the same measurement and much faster than they can be made without a pattern rack. Even if one is going to make only enough nest partitions for a single nest room it will pay to make a pattern rack as such a method will save over one half the time required to make even single nests by common every day process.

How to Make Pattern Rack

Saw off enough pieces, two inches thick lumber, 45 inches long to make a table 18 inches wide, (naturally the number of pieces will depend upon the width of your 2 inch thick lumber). Along one side and across both ends of this table, nail a 1x6 inch piece, edge up, allowing all but 2 inches of this board to extend above the surface of the table. Mark off the rack or table into four equal parts which will make each space 11 inches wide, extending the marks all the way up the back board. Lay an inch square cleat loose on the table against each of the ends and another inch cleat against these two cleats. Nail the two latter cleats to the table, and remove the first two loose cleats laid down which were only for quick measure. Then place

three groups of cleats across the table at each of the three 11 inch marks having the center cleat of each group centered directly over the mark. Nail the two outside cleats of each group to the table and remove the center loose cleats which were used only for quick measure and your rack is complete. The 11 inch marks must extend straight across the table to and up the back board and the cleats must be the same distance apart at the back of the table as at the front. See drawing.



FRAME ON WHICH TO MAKE UPRIGHT NEST PARTITIONS

The above frame can be made on the top of a bench or table but it is preferable to make it out of separate lumber.

Place five cleats in all five of the inch wide spaces on the pattern rack or table, cover them with enough boards $\frac{1}{2}$ inch thick or one inch thick and 45 inches long to make a width of 18 inches. Then directly over the two end and the three center loose cleats, lay five other cleats 18 inches long and nail straight through these top cleats down through the partition boards into the loose cleats underneath. Use nails long enough to go almost through the lower cleats. When this is done, the nest partition can be lifted out of the pattern rack completed with cleats on both sides and will be so constructed that it can be used either end up.

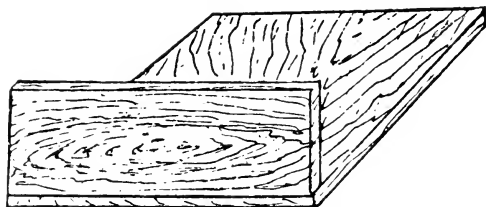
The 12 inch wide upright partitions are made exactly the same as the 18 inch wide partitions except cleats 12 inches long are used instead of cleats 18 inches long.

If $\frac{3}{4}$ inch square cleats are used the form or pattern table must be made with $\frac{3}{4}$ inch cleats instead of inch square cleats.

How to Fasten Up Eggleston Double Nests

To fasten up the Eggleston Double Nests, nail a 2x4 horizontally, about 18 inches from the floor on to a blank wall against which the nests are to be placed. Then 45 inches above the 2x4 nail another one horizontally, the 4 inch side to the wall in both cases.

It is presumed that one end of the row of nests will start from an end wall in which case, nail the first 18 inch wide upright



NEST BOTTOM

nest partition, cleated on one side only against the end wall with the back edge between the 2x4's above mentioned.

Then nail a 12 inch upright nest partition between the 2x4's, $11\frac{1}{4}$ inch away from the end—then an 18 inch partition and a 12 inch alternately, $11\frac{1}{4}$ inch apart until you get the entire nest unit up.

To fasten these upright partitions in place, nail through the end cleat at the bottom of each partition into the lower horizontal 2x4 and toe-nail through the upper 2x4 into the top cleats of the partitions.

To determine the exact distance the nest partitions should be apart, first mark off the spaces $11\frac{3}{4}$ inches wide on the top of the lower horizontal 2x4 which allows 11 inches for the nest bottom, $\frac{1}{2}$ inch for the thickness of each partition and $\frac{1}{4}$ inch

leeway to make the nest bottoms easily removable. If the nest partitions are made out of inch lumber and allow an inch instead of $\frac{1}{2}$ inch for same and if the nest bottoms are 12 inches wide allow accordingly.

Next take a 1x4 the length of the row of the nests you are putting up and mark it the same as you have marked the horizontal 2x4. Nail this 1x4 across the top of the nest partitions allowing the outer edge of the 1x4 to run along even with the outer edge of the 12 inch wide partitions. This will hold each partition in its place at the top and the porch or two feet long running boards in front of each double nest, will hold each partition in its place at the bottom. The row of nests should be covered over on top with $\frac{1}{2}$ inch or 1 inch lumber.

The nests put up in this way will seemingly be suspended from the wall without anything supporting them at the front, but such a support is not necessary. The two horizontal 2x4's will hold the nests up easily.

(See drawing of Section of Eggleston Double Nests on page 225.)

LIGHT AND AIR FOR SQUAB HOUSES

Houses should be built so as to furnish plenty of light and ventilation. The partitions between the nest room and the aisle should be made up of wire, and the partitions between the nest rooms should be made of open lattice work.

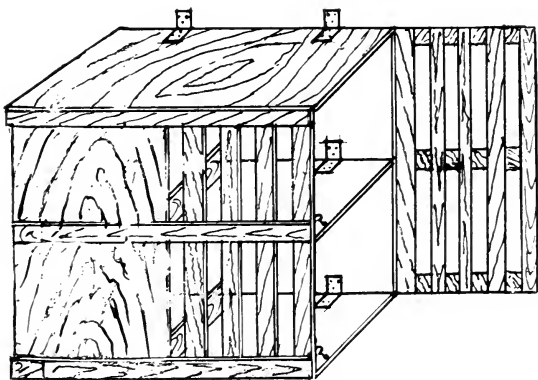
A door in front opposite each nest room, and a window in the rear under the eave in each nest room will furnish plenty of light and gives perfect control of the ventilation at all seasons of the year. The windows should be hung so as to open up out of the way of the birds. The window opening should be covered with one-inch mesh wire.

The wire door leading into the fly pen should be opposite the door leading to the nest room, making it convenient to go from nest room to fly pen. This outer wire door should be provided with two sections of canvas covered removable frames for winter use or stormy weather. These canvas frames keep out the cold yet permit circulation of light and air, which is very essential in squab raising.

COLLAPSIBLE MATING COOPS

Mating coops are necessary to successful squab raising. I have designed a collapsible mating coop that can be hung up in the aisle or along any wall. They are large enough for all purposes and easy to construct. The nest is located back out of the light, which is an advantage, as well as forming a semi-double compartment sufficient to keep the male bird from fighting the female when they are first put together.

One end and one side of the coop are slatted, while the other end and side are solid. This furnishes plenty of light and air



COLLAPSIBLE MATING COOP

without draft, an advantage often overlooked in mating coops.

The nest bottoms, as I make them, are removable, making it easy to clean the coops, and the coops are so arranged that feed, water and grit can easily be supplied. The coop is hinged to the wall in such a manner that it can be collapsed and swung against the wall out of the way.

Each coop is two stories high, thus a number of pairs can be mated up at the same time.

If you have a large plant or a large number of pigeons, mating coops are always needed, so it is well to provide them in advance, with economy in both material and time.

If you have a large number of nest rooms in a row or in close proximity, a mating room with a number of mating coops can

be provided convenient to your nest rooms. As it does not require as much space for mating coops as it does for nest boxes, a space four feet wide will furnish enough room for a row of mating coops on one side of the wall. A room six feet wide is sufficient space to have mating coops on two walls, but if you have your squab house constructed on the Eggleston plan, with the aisle in front, the aisle furnishes a practical and convenient place to put mating coops of the collapsible design, as described above.

If a number of mating coops are made together, a little drinking trough can be run along in front of any number of coops, which will save much time, or a can or cup of any kind can be fastened on the outside of each mating coop, and the same kind of an arrangement can be provided for feed, grit and oyster shell, etc.

Birds that are shut up for a few days in this way should always be provided with grit and oyster shell. A good method is to place a can of feed and a can of oyster shell and grit in front of two mating coops so that the birds in each coop will have access to feed on one side and oyster shell and grit on the other. In this way, one can of shell or grit will supply birds in two separate mating coops, which will not only save room and feeding cans, but time in filling them.

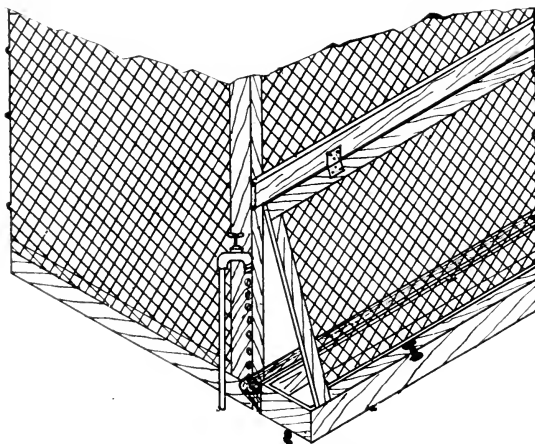
It is not a good idea to put the feed or grit in where the birds can foul it. The best method is to keep this on the outside, but it is not a bad plan to cover the bottom of your mating coops with coarse sand or fine gravel, or at least throw a handful of fine gravel on the floor of each coop.

No straw, tobacco stems, or nesting material is necessary for birds that are just mating. By the time they are mated sufficiently to be ready to build their nest, they can be taken out and put into a regular nesting room, with the other birds. It is not a wise idea, however, to put birds back into a pen with their old mates, as they are apt to leave their new mates and go back to their old ones, unless they have been mated long enough to raise a pair of squabs, then they are not liable to separate.

HOW TO BUILD A BATH TROUGH

The construction of a bathing room along the outside of a fly pen, as is illustrated by the accompanying picture, is a very simple undertaking, yet it is a most convenient and serviceable bath arrangement.

I got this idea from a city farmer who had a similar arrangement on the outside of his hog pen, which he used for swill. He



BATHING AND DRINKING TROUGH

Corner of fly pen, showing bathing and drinking trough with bath gate open and ready for bathing. When completed a piece of heavy canvas is nailed at the end of the gate in order to keep birds from getting out or from one pen to another.

would first fill his trough up with slop and then open the swinging gate at the bottom, which would permit the hogs to get to the trough. After they had finished, the gate would be closed and the trough cleaned out and in this way kept the trough from getting soured with the swill and creating an offensive odor.

To construct a bath trough it is best to select lumber that is free from cracks or knots. Make the trough 10 to 12 inches wide, about 5 inches deep and as long as the width of your fly pens or fly pen units. A continuous trough the full length of a

number of fly pens can be constructed and in this way several pens of birds can be watered or given a bath simultaneously and with practically no more labor than it would take to give one pen of birds water and a bath.

After the trough is made block it up in place at the bottom and along the outside front of your fly pen. You can make it level by pouring a little water into the trough.

To keep it from leaking first paint all the knot holes, joints, cracks and corners, both inside and out, with a heavy coat of asphaltum or warm tar. When this dries, which will only take a few minutes, give the trough another coat of asphaltum or tar, this time covering the entire surface of the trough. Should you then find leaks at any place, repaint it at that point with one or two more coats of tar.

If a continuous trough is desired, two can be joined and made water tight by tacking a piece of tin over the joints or one-half of two adjoining boards can each be sawed out and lapped together.

After the trough is made and in place, make a gate frame three feet wide and as long as the width of each fly pen; then nail the wire on to this frame by using the same wire that is in use on the fly pen. You can do this by putting the frame in place, tack the wire on same and then cutting the wire on the outside of the frame. But before cutting the wire loose at the top of the frame, nail a strip across the front of the fly pen about three feet from the ground and tack the wire on to same. This board will form a piece on which to hinge the gate, or the wire can be left uncut at the top and thus will serve as a hinge.

This frame or gate should swing down inside of the trough when shut and when open should raise up against the outer top edge of the trough and be fastened there with a couple of hooks or old fashioned wooden buttons, as shown in diagram. When the gate is open the birds have access to the bathing trough and when closed the trough can be swept out and cleaned conveniently.

To prevent the birds from getting out at the end of the trough when the gate is open, or from getting from one pen to another, tack a three-cornered piece of cloth to the gate and the fly pen the size of the space when the gate is open. This cloth will fold up like a bellows when the gate is shut.

The cloth must be long enough to reach clear down to the bottom of the trough and be fastened on the inside of the trough, otherwise birds will crawl under same and go from one pen to the other.

Bathing

If dirty bath water is left where birds can drink it, it is bad for them. For that reason it is necessary to empty the bath water soon after the birds have bathed in it. This, together with the trouble of going into each pen to fill bath pans and many other unnecessary steps are saved by the use of the Eggleston bathing system.

Then, too, this method provides a better means for giving the birds a bath and has many features of advantage.

The cut on page 234 will show just how to construct bath troughs, which can be used with or without the little drinking trough attached. The drinking trough in the nest room is needed for youngsters, on the floor affords a handy place for the females to get a quick drink and is especially good at feeding time, when the old birds are feeding squabs. The drinking arrangement in fly pens is not necessary, but well worth the little trouble it takes to construct in connection with bath trough and, therefore, I recommend it. Bathing or drinking troughs can be made of wood or galvanized iron. If made of wood they will need a couple of coats of hot coal tar or asphaltum to prevent leaking.

If running water is not available or if water is scarce, a short bath trough two or three feet long can be used in front of each pen, with a short gate made on the same principle as a long trough. In such a case the trough will have to be filled by hand, but even so the work will be done on the outside of the pens and easy to get at.

When running water is used, the faucet should be placed above the smaller drinking trough, so on other than bath days, a small dripping stream can be turned into the drinking trough only. On bath days the same faucet will fill the bath trough if the outer edge of the drinking trough is made higher than the edge next to the bath trough, which construction will also provide a daily overflow into the bath trough and keep it damp, thus preventing probable leaks.

Drinking Troughs

First, make a three-cornered trough out of $2\frac{1}{4}$ -inch pieces of lumber or out of galvanized iron. This trough should be as long as the combined width of each unit or nest room of the squab house. If made of wood the trough should be given two heavy coats of asphaltum to keep it from leaking; tar applied while hot will also prevent leaking. In warm climates this trough can be run along the outside of the back wall just above the level of the floor, with openings cut through with slats across for the birds to drink through.

In colder climates the trough can be run through the inside of the nest rooms. In such a case it is best to run it next to the back wall, where it will be out of the way when cleaning. A removable cover for the inside trough can easily be provided by nailing a 1x6 inch board as long as the trough on to two $1\frac{1}{2}$ inch thick blocks, so when the cover is on the birds can get at the water to drink, but not in the troughs.

By making these cover boards about 4 feet long, two can be used in each nest room, which will be easier handled than a longer one.

If the outside trough will be in the sun or where dirt will blow in it, a cover should also be provided. In case there is no city or running water available, then a barrel or keg can be placed at one end of the trough with a faucet set just above the trough, and turned on so a small dripping stream only will run. An overflow should be provided for at the farther end of the trough, so the water will not run over into the nest rooms. If water is scarce provision can be made to catch and save the overflow to be used for bathing purposes.

HOW TO SUPPLY DRINKING WATER FOR NEST ROOMS IN SOUTHERN OR WARM CLIMATE

In climates where the winters are not too severe, a small "V" shaped trough can be run along the outside of one or a row of nest rooms, on a line with the floor of the squab house with an opening cut into each nest room. The opening should be 2 feet long and 6 inches high with slats or lath nailed on running up and down an inch and one-half apart. This will allow

the pigeons to put their heads through between the slats and reach the water easily.

Provide a water faucet at one end of the trough so that the water will drip into the trough. The trough being "V" shaped will make it possible for birds to drink with a very small amount of water in the trough.

Where city or running water is not at hand, a keg or a barrel with a faucet can be placed at one end of the trough and in this way the water will be kept cool and not become foul by standing in the nest rooms. It will save time and trouble in filling drinking fountains or pans. It is best to run the trough along the shady side of the squab house and if necessary to keep out the dust or dirt, a slanting cover hinged on to the house even with the top of the openings and allowed to drop down over the trough. This cover will also shade the water if the trough is on the sunny side.

FEED BOXES

If the Eggleston plan of squab house is used, with an aisle in front of the nest rooms, the feed boxes should be made to fit the spaces on each side of the doors that lead to nest rooms. See slatted space for that purpose in nest room drawing. The slats, you will notice, are nailed on up and down, and are far enough apart to permit the birds to feed through them.

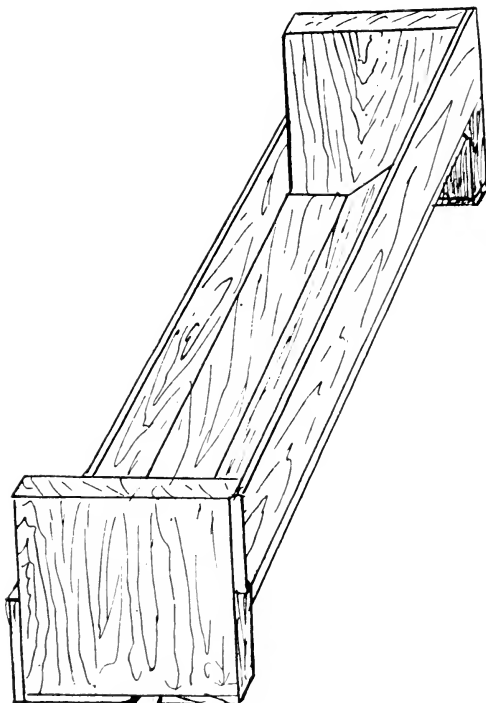
Feed boxes should be made 5 inches wide, 2½ inches high in front and 6 inches high at back. It is best to make these boxes out of one-half inch lumber, the front at least should be made out of thin lumber, so the birds can reach the grain easily. (See "Aisle Feed Box" drawing.) Two feed boxes should be made for each nest room, one for each side of the door; otherwise there will not be enough room for the birds to eat all at once, and the first ones to the feed box at feeding time will eat the choice grain, and those that are crowded away will get the leavings.

If feed boxes are required to be placed in the center of the loft, the best method is to make the boxes 6 inches wide, 3 inches high and about 4 feet long, with a revolving roller above the box to keep the birds from perching on the box and fouling the grain. The roller can be made out of one-inch square strip or

a broom handle with a nail driven part the way in each end to fit loosely in the notches at top of each end; or a V-shaped trough swung over the feed box also makes a good protector for the feed.

HOW TO MAKE FEED BOX

There are several things that must be considered if a feed box is constructed so as to give best results. First: there must be enough room for all the pigeons in a pen to eat at the same time, otherwise the stronger and older birds will crowd in and get the most and best feed while the weaker and more timid



BOTTOM OF AISLE FEED BOX

birds will be shoved back and will have to take what is left.

Second: The box must be constructed to prevent the birds from getting into it or perching on top of it, thus taking up the room or fouling the feed.

Third: The box must not be so deep nor wide that birds cannot stand on the floor and reach all the feed. The thickness of the side pieces which the birds must reach over must not be so great that the birds cannot bend their necks over same and reach down to the grain. A bird's neck is not very long and therefore they cannot reach very much feed after reaching over a board an inch thick.

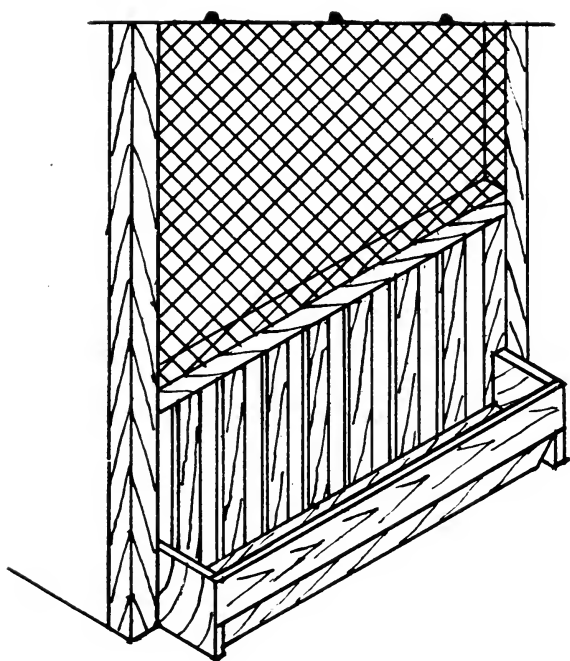
Fourth: The box should be movable so it can be emptied out and constructed so as to be easily cleaned. A good plan is to dip feed boxes into whitewash made of lime about once a month which will keep them dry, clean and pure inside and out.

There are several kinds of feed boxes in use but I have seen none so good and practical as the two that I designed. One to be used in connection with my "aisle in front" plan and the other to be used inside of the nest room in the absence of the front aisle.

The aisle feed box is made as follows: First make four ends 6 inches square out of one-half inch thick lumber. Saw off a three-inch corner from two of them by cutting from the center of one side of the block across the corner to the center of the end of the block, and then double the four blocks by nailing the two whole blocks to the two blocks with the corners off. This doubling up will give you two end blocks six inches square and one inch thick except at one corner where the blocks will be one-half inch thick. Nail a three inch board two and one-half feet long to the ends. This will form the bottom of the feed box. The two sawed off corners must be turned toward each other and the bottom board nailed to one of the three inch wide portions of the ends. Then nail another three inch wide board two and one-half feet long to the other three inch wide parts of the ends. This will leave a space between these two and one-half feet long boards about four and one-half inches wide. Over same nail a one-half inch board two feet and seven inches long which should fit into the two off-sets of the corners across the two ends, and form a slanting bottom at the back

of the box. These three pieces will form the bottom and the back of the feed box. Then nail a one-half inch thick board two feet and six inches long across the front allowing the lower edge of the same to extend down even with the bottom edge of the bottom board and your box is completed.

The slanting bottom will cause the grain to roll to the front of the box so that the birds can reach it and the front being one-half inch thick and only three inches high will enable the



AISLE FEED BOX IN POSITION

The slanting bottom in the feed box serves two purposes—to cause the feed to slide towards the front within reach of the birds and as an opening to furnish light into the lower box when one box is set on top of another for double decking purposes.

birds to reach the grain in the bottom of the box. An aisle feed box can be made with the two ends sawed out of inch thick lumber and the slanting portion of the bottom nailed in as shown by cut herewith.

Place one of these feed boxes in the aisle on each side of the door of the squab room.

DOUBLE DECK FEED BOXES

If you have so many birds in a pen that they cannot all get to the two aisle feed boxes at the same time make two more for each nest room, the same as described above and set them on top of the other two boxes. The square ends will set on the end of the other boxes without tipping and the slanting bottom in the top box will allow the light to pass through so the birds can see to eat the feed in the lower box. Run a one by four inch board on the inside of the nest room six inches above the floor along in front of, and even with the bottom of the upper feed box for the birds to stand on while eating out of the upper box. This will double your feeding capacity and give you ten running feet of feeding space.

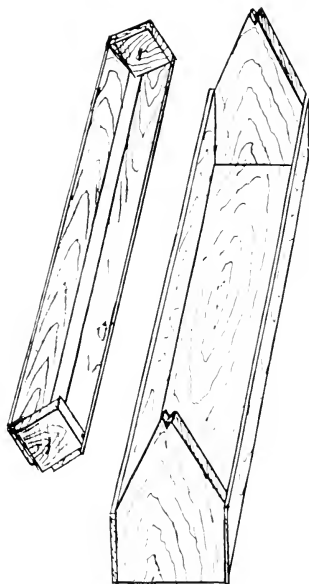
The detailed description of how to make aisle feed boxes makes the operation seem difficult but it is a simple undertaking and a number of boxes can be made in a short time.

HOW TO BUILD FEED HOPPERS

The author is not a believer of feeding pigeons by the use of a feed hopper or self feeders except where the extreme or unusual conditions exist. For instance when a few birds only are kept and the owner or attendant has not the time to feed his birds in the usual way or where it is necessary to feed birds enough to last them several days. In either case a feed hopper can help solve a bad problem.

The most practical hopper is one that has several compartments and is so arranged that each kind of feed except peas, peanuts and hemp can be kept in separate compartments. In this way the pigeons will not be forced to eat more of a certain kinds of grain than they want in order to get enough to satisfy their hunger.

The greatest objection to a feed hopper is the fact that they will clog up on account of the birds eating only certain kinds of grain as it comes down causing the uneaten grain to accumulate and clog the hopper. This will not happen if corn for instance, is put into one compartment, wheat in another, kafir



LOFT FEED BOX

The above feed box is constructed with a swinging cover which will prevent birds from getting in the box and soiling the feed. Note the space in the bottom of the cover for pouring the grain into the box. This makes it unnecessary to remove the cover for feeding purposes.

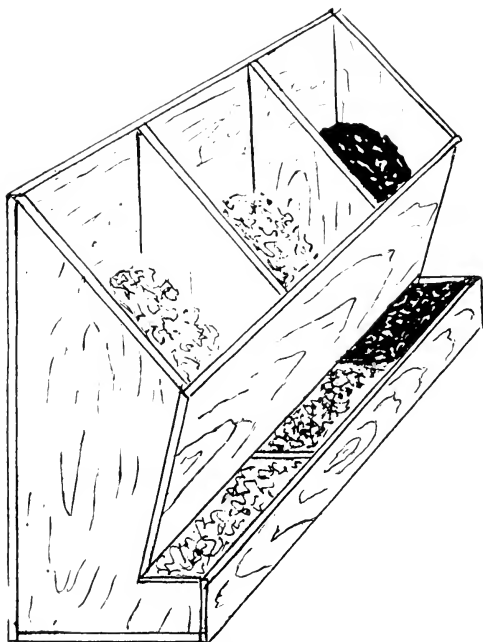
corn in another, etc. The next objection to a self feeder is the detriment of keeping a constant supply before the birds which is more than is necessary, hence expensive, as birds will eat more than they need.

A feed hopper or self feeder should be built exactly along the same lines as the grit hopper described herein, except larger according to the number of pigeons to feed and the length of

time the feed must last them between filling periods. The hopper can either be kept in front aisle where the regular feed boxes set or in the nest room. If kept in front aisle the top can be square, which will provide for more grain.

HOW TO MAKE GRIT HOPPERS

Grit, charcoal and oyster shell can be kept in open boxes such as a tobacco or a cigar box but pigeons will foul anything kept before them with an open top. The best plan therefore is to provide a special box for the purpose which will be



THREE-COMPARTMENT GRIT HOPPER

A three-compartment hopper is the best arrangement for providing birds with grit, charcoal and oyster shell. When complete the above box has a cover either hinged on or made with cleats on the under side of the cover to keep it in place. The latter is preferable.

economy in the long run. A three compartment hopper is the best arrangement for grit, charcoal and oyster shell.

First: Saw out two pieces for ends and two pieces for partitions just alike out of one inch thick lumber as per the cut shown here with a strip 3 inches wide nailed across the bottom; nail a one-half inch strip 3 inches wide across the bottom of the front, a 10 inch board 18 inches long across the slanting portion at the lower part of the back to cause the grit to slide down to the front of the hopper so the birds can reach same. Then nail a front board on 12 inches wide and 18 inches long, put on a slanting cover 12 inches wide and 18 inches long hinged at the bottom of the cover so it will let down making it easier to refill the hopper without holding the cover up or moving the hopper away from the wall where the hopper should stand out of the way when in use. The slanting cover will prevent the birds from perching on the hopper. (See cut on page 244.)

THE EGGLESTON NEST MATERIAL RACK

Nesting material such as tobacco stems, alfalfa, hay, prairie hay, straw, etc., should be kept within easy reach of the birds and the best place to keep it is in the nest room, but unless it is protected from the birds, they will foul it by roosting on the same, and if it gets trampled down under their feet and gets dirty, they will not and should not use it to make nests of.

The simplest, most convenient and practical and easiest to construct rack, is a V-shaped rack. This rack can be placed on the floor against any wall, or if the nest room is equipped with Eggleston double nest boxes or nest boxes that are up off the floor, it is best to place the material rack underneath the row of nests, which will prevent the birds from climbing on top of same. If this cannot be done, a cover is necessary to keep the birds from perching on the nesting material.

By having the slats run up and down and the crate large at the top and small at the bottom, material will by its own weight feed to the bottom of the crate, where it can be easily reached by the birds. The slats should not be over three inches apart, which will enable the birds to pull only one stem at a time and prevent the material from getting out in quantities where it would be strewn over the floor, soiled and wasted.

To make the crate, first decide on the length (three feet is a good length), then measure the distance from the bottom outside edge of your nest boxes to the floor next to the wall, which will be the length of your slats. Nail the slats or lath on to two slats or lath three feet in length for the top and bottom pieces, which will form the front of your rack. The ends of the rack can be made by tacking three-cornered pieces of chicken wire against the wall or make a triangle shaped end of lath or slats.

If the crate is to be placed under a row of nests it should not be nailed to the wall, as it could not be easily filled, but should be fastened in place by a couple of hooks to the outer edge of the nest, or by the use of a couple of old-fashioned wooden buttons so the crate can be unhooked, pulled out and filled, shoved back into place and refastened quickly.

CHAPTER XVII

MANAGEMENT AND BOOKKEEPING

METHODS OF MANAGEMENT

All management and no work is worse than all work and no management but why not some of each and thus make both more effective and a pleasure.

A mixture of brains with muscle is an essential thing around a squab plant either large or small. The manual labor is not so hard but it soon becomes drudgery if done in a way that gets little or no results. While work twice as hard is like play if it is done along well directed lines and in a way that will cause one to become interested.

The author when a boy would gladly tramp for hours through the snow rabbit hunting or half a night over rocks and hills and through thickets and swamps with hopes of catching a coon or an opossum, while if dad wanted a rail fence fixed up on a cold day or some chores done, that took us until after dark, we thought no one on earth had such hard work to do.

This is a little off of the subject, but it illustrates the fact that one must be interested before work becomes a pleasure and to this can be added that the best way to become interested is to plan out the work in advance by careful thought and study and then by accomplishing what was undertaken, one's personal interest will increase as time goes on and especially so if the plant has been constructed along the most practical lines and equipped so as to be labor saving, if good quality of squab breeding birds have been procured as a foundation stock and everything else taken care of along similar lines.

It costs no more to do things right whether with a few birds in a back yard or large squab plants and in the long run it costs less, to say nothing of the time saved and increased results which repay over and over for extra time and thought learning the right way and for proper preparation.

It is not enough that one should learn the right way and start right, but it is also necessary if the fullest measure of success is to be obtained, to continue to do things in the right way. A squab plant, large or small, will not run or manage itself. Someone must keep in touch with the conditions and see that the birds have the proper food, water, grit, etc., daily and that everything is progressing smoothly.

Then it is also necessary to give some attention to the financial end of the business, the best place to purchase feed and other necessities, best place to market your squabs, amount paid for help if help is employed and if the help is doing good, thorough efficient work.

The proper management has considerable to do with the success of any business and this is especially true with the raising of squabs.

HOW TO DREAM THE MAXIMUM SQUAB YIELD

Wonderful as pigeons are and the profit that can be made from the pigeon business, there is a limit to what a certain number of pigeons can do. Like most other business, there are two ways to figure pigeon raising: a mathematical calculation, based on theory and a calculation based on experience and actual tests. I have demonstrated over and over that a pen of good producers will more than double itself in number every three months. Fifty pairs, for instance, will increase to 100 pairs in three months, to 200 pairs in six months, 400 pairs in nine months, and to 800 pairs in twelve months, which ought to be good enough for any one; but, no doubt, there are many who figure like one of my customers, who calculates that he will have 118 pigeons raised from one pair in a year's time. I quote a recent letter from him:

"Dear Mr. Eggleston: The pair of Carneau pigeons you sent me five months ago are certainly some birds. They have raised five pairs of squabs and the oldest squabs have mated and now have two eggs almost ready to hatch. I figure this way, that by the end of a year I ought to have 118 pigeons. By the following table, which, no doubt, will be of interest to you, I have shown how I am going to have 6,962 birds at the expiration of two years. At that time I am planning on no other business except my pigeons." (See table on next page.)

HOW ONE PAIR OF PIGEONS COULD BREED TO A FLOCK OF 118 IN ONE YEAR.

	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Pair A ..	2	2	2	2	2	2	2	2	2	2	2	2	24
In May pair B starts.....					2	2	2	2	2	2	2	2	16
In June pair C goes to work....					2		2	2	2	2	2	2	14
In August pair D goes to work.....						2	2	2	2	2	2	2	12
In August pair E starts producing.....							2	2	2	2	2	2	10
In September pair F starts producing.....								2	2	2	2	2	8
In October pair G is 5 months old and will produce									2	2	2	2	6
In November pair H is 5 months old and will produce										2	2	2	4
In December pair I is 5 months old and will produce.....											2	2	2
October B's first pair is 5 months old and starts..										2	2	2	6
November B's second pair is 5 months old and goes to work											2	2	4
December B's third pair is 5 months old and will produce..												2	2
November C's first pair is five months old and goes to..											2	2	4
December C's second pair is 5 months old and goes to work												2	2
December D's first pair is 5 months old and starts pro- ducing												2	2
Original Pair													2
Grand Total													118

"Now, Mr. Eggleston, do you think that my figures are correct, and that I may depend on producing about that number? If not, how many pairs more would advise me to buy in order that I may have six or seven thousand birds in two years time?"

BOOKKEEPING

Like any other business, a record should be kept of the expenditures and sales. Unless one has a large plant, it is not necessary to keep a full detailed set of books, but a record sufficient to furnish the necessary information as to the cost of running and maintaining the plant and the proceeds derived from same should be kept.

This can be done on a small plan by entering in one column money spent for house, equipment, breeding stock, feed and other expenses, and in another column, the sales and money taken in for squabs or breeders. But if one expects to go into the business extensively or to know the extent of his profits, he should keep a more complete record by keeping account of the cost of each article used and each item of expense, so he can

at any time or at the end of the year, know just what it costs him for feed, how much it cost for labor, general up-keep of the plant, etc.

This will enable him to manage more successfully the business, and by having such information at hand he can economize and manage his business in such a way that greater profits can be made than could be with a plant running haphazardly and without a knowledge of the expense of the different branches of same.

With a large plant, at least ten per cent of the building and equipment should be charged off annually to profit and loss for depreciation, and 15 to 20 per cent of the annual cost of breeding stock should be charged to profit and loss, as the actual life of a breeder is not more than five to eight years.

One might be losing money right along and not know it, or his birds might be bringing him a fairly good return for the investment and probably he would think that they were unprofitable. Therefore, even if one has but a few pair, it is advisable to open up and keep a profit and loss account, which will prove more valuable than the time spent in keeping it.

CAUSES OF FAILURE

There are failures in every business. There are people who fail at most everything they undertake and then there are people who succeed at most everything, yet might fail in some certain line of business.

There are many causes of failure in the squab business. As a rule, however, they can be traced to two or three reasons, viz.: lack of care and attention to business or over-estimating the possibilities of the business; under-estimating the knowledge and care necessary to success and lack of confidence.

While squab producing pigeons are very prolific there is a limit to their possibilities. Some people over-estimate the number of squabs they can raise and the rapidity with which a flock can be increased and then be disappointed because their expectations were not realized.

An investment of \$200 or \$300 cannot be expected to yield several hundred per cent profit, yet the average person entering the squab business will calculate on starting with a small num-

ber of pigeons and increasing their flock by saving their youngsters and maintaining their flock and other expenses by selling their squabs. Then, because they cannot perform an impossibility they become discouraged and abandon their project. Such an end should not be classed as a failure.

A person on the other extreme will, without knowing anything about squab raising, start in and expend a large amount of money for grounds and buildings much more expensive and elaborate than necessary and build along lines that are impracticable and then buy a large number of breeders to start into a business without first having found a possible market for their squabs and without knowing very much about what can be accomplished. Their inexperience in caring for birds and lack of attention will cause them to change their minds regarding the possibilities of the business with the result that they are willing to abandon the proposition with a great loss.

Then there is the real failure. This is the man or person who enters the business because he has never succeeded in any other line but is looking for an opportunity to get rich quick or to get an easy living the balance of his life without work. As for as his enthusiasm lasts he does not fail but soon he starts to neglect his plant by allowing the nests and squab rooms to become foul and dirty. The birds have insufficient feed and impure water, the pens are full of unmated birds and the presence of lice and canker, all of which go along with failure.

Then we have the other extreme in real failure. This person overdoes the work and although possessing but a few birds makes a slave to the squab business. You will find his pens and nest rooms immaculately clean. He has a complete record of every bird in his plant, every egg that is laid, and after all of this he puts in the rest of his time watching his birds instead of doing something else that would bring him in some money.

Such a man would probably make a success of the business if he had a large plant and enough birds to justify his time and attention, but as a rule his means are limited and before he can get his squab business on a basis that will make him a living he is at the end of his row financially and is forced to give it up.

Summarizing: A man who does not go into the business gradually and study it thoroughly as he progresses and expands,

and who has no other business to devote a part of his time to, which will bring him in an income until he can get his squab business on a basis sufficiently large to support him, will most likely fail.

Likewise will the person who figures that the squab business is a cinch and thinks no effort is required to succeed. Then, too, a great deal depends on the quality of the man, his desires and willingness to pay the price of success by diligent effort mixed with common sense.

Almost any one can make a success of the squab business if he has the desire to the extent of putting forth the necessary effort, almost regardless of the conditions that might confront him. Considerable depends on the person's mental attitude towards the business. There is also the over-confident person who expects too much and takes too much for granted.

The squab business is a success and it is being successfully carried on all over the country by people in all walks of life on both a large and small scale. The man that goes into the business, therefore, to try it out generally labors under a handicap. If beginners would only understand that a good breed of squab-producing pigeons will produce squabs in paying quantities if given the proper care and attention. Also that there is a demand for good squabs at paying prices and that the business was all right. Then, if anything was wrong the fault could be traced to the keeper where it could be remedied and his chance for success would be almost certain.

DO'S AND DONT'S FOR SQUAB BREEDERS

Don't build the top nests so high that you can't see in the top row when standing on the floor.

Build nest boxes 20 inches or so from the floor. This will tend to keep birds from building on the floor.

Use the double nest box system. Its worth is inestimable.

Give birds Swiss chard, lettuce or other green food two or three times a week in spring and summer.

Furnish the birds with some straw or hay or both along with tobacco stems for nest material. Especially so if the tobacco stems are coarse.

Don't fail to sprinkle dry hydrate of lime (air slacked) on the

floor of the squab house weekly. The birds will scatter it with their wings and it will keep the entire room dry and sanitary.

Squab house should be cleaned at least once a month and nests after the squabs leave them.

Carbolineum, lime, tobacco stems and clean lofts are good lice preventatives.

The bottom of the fly pens should be fine gravel, then stir up occasionally or, better still, add a little fresh supply weekly.

Don't try to catch birds with one hand. Use both or a catching net if one can be used to advantage.

Pigeons should have plenty of fresh water before them especially at feeding time.

Keep the scattered grain off the floor, or it will get fouled and make the birds sick if they eat it.

Decide on one breed and then stick to it. There is nothing in scattered efforts.

Don't catch or hold birds by the feet or one wing as they will hurt themselves trying to get loose.

Don't feed on the ground for uneaten grain will sour and spoil.

Don't allow foul or dirty water to stay in the drinking troughs for it will make the birds sick.

While salt is necessary, don't give pigeons loose salt. Too much salt will kill them. Make a salt cat for each pen.

Don't allow birds to build on or near the floor as the squabs will leave the nests too early. As a preventative, follow the Eggleston construction plan of nests.

The wire cover of fly pens should not be over 6 feet and 6 inches high. If higher you can't catch the birds well.

The door of the nest room should not be at the opposite end from fly pen for with such an arrangement the birds will fly off their nests and out of loft when one enters.

Drinking fountains should be cleaned frequently. A good plan is to scald them once a week.

Don't permit a draft to blow through the squab house, especially near the floor. This does not apply to fresh air.

Don't be afraid of birds inbreeding. Each pair is a separate family. Then, too, a little inbreeding will do no harm.

One breed is enough if it is a good one. Keep the best breed and sell the rest if you have more than one kind.

Constantly mating and remating birds unless for a purpose is lost energy and slows up production.

Don't forever be doping your birds up with medicine. Good feed, fresh water and the proper loft conditions is the real dope they need.

How would you like to have a quack doctor treat you who knew no more about you and your ailments than you do about pigeons?

It is easy to make a well bird sick with medicine.

Don't cross breeds. A mule is the only successful mongrel known and it is not prolific.

Trying to practice economy by buying inferior birds to breed from is really extravagance.

Don't try to economize by feeding bad grain.

Never save poor, inferior squabs for breeders, as they will reduce the quality of your stock.

Dispose of weak or inferior breeders, especially so if they are males, as one always has surplus males.

Don't try to raise squabs without some care and attention. Better go out of the business.

CHAPTER XVIII

FANCY PIGEONS

CHARACTERISTICS OF DIFFERENT VARIETIES

Considering the vast difference in the general appearance of the different varieties of pigeons, there is perhaps a more marked distinction between them than with any other animal species and yet with all their differences including feather growth, color, size, characteristics, etc., they possess the same common habits and general traits. In short, pigeons are pigeons the world over though of many varieties.

It is said there are over three hundred kinds of breeds of pigeons, all of which are supposed to come from the ancient Rock pigeon. The Rock pigeon in its wild state has all the habits and characteristics of the domestic pigeon. In fact, with the exception that the Rock pigeon is uniform in size and color, there is little difference between them and the common barn-yard pigeon. Darwin and other noted men who have studied the origin of pigeons, claim that by the method of selection and elimination, aided by climate and other conditions, various different breeds have been developed from the Rock pigeon. This is borne out by what is possible to accomplish now by the same process.

There are five radical or extreme developments in pigeons, namely: size, shape, color, feather arrangement and habits. Two, three, four and sometimes five of these peculiarities are found developed in a single breed of birds. The English Pouter, for instance, is large in size, specially marked as to color. His feather arrangement includes long feathers on the legs, slender body and crop, and its habit of filling its crop with air and prancing around makes a marked difference in its habits. A Tumbler is another example of a breed with all five distinctions being greatly developed. They are extremely small in size, are bred in solid colors, have a very short, odd shaped head, are bred with or without long feathers on the feet and legs, and will turn over and over in the air when flying. The Jacobin

has its feather arrangement especially developed; so has the Fantail. The Runt has been developed into the largest breed of pigeons. Archangels, Magpies, Satinettes, etc., for their color; Magpies, Pouters, Tumblers, Turbits, etc., for their shape, and Tumblers, Pouters and Flying Homers for their peculiar habits. The habit of the Homer to return home in an air line when liberated, almost regardless of direction, distance and time, is probably the most peculiar and remarkable of all.

The most convincing proof that all pigeons were developed from a common breed is the fact that the results from crossing two or more of these peculiar breeds will produce an offspring that will resemble the old Rock bird and a few more crosses will produce a common barnyard pigeon.

RAISING FANCY PIGEONS

There are some 200 different varieties of fancy pigeons. They are usually raised as a fancy or hobby, and their extreme shape, color, and actions invariably mark their good qualities, each breeder endeavoring to perfect his birds along special lines peculiar to that particular breed, to a degree that will enable him to surpass other breeders of the same variety. To determine the winner in such friendly rivalry, competition pigeon shows are held where breeders of fancy pigeons enter their best birds in competition. The prizes consist of cups, medals, ribbons and cash, and are offered by the club or association conducting the show.

Carneaux, Maltese, White Kings and other squab producing pigeons are often entered in these shows, either for advertising purposes or by fancy breeders, who delight in excelling in these particular varieties.

There are recognized standards for each fancy variety which are published and obtainable from different pigeon associations throughout the country. A person desiring, therefore, to breed fancy pigeons for exhibition purposes, should secure a standard of the breed that he desires to breed, so that he will know what constitutes a perfect bird; otherwise, his efforts of development would not be along the proper lines.

There are people who breed fancy varieties and keep them for sale. Their ads. are generally found in pigeon magazines that cater to the fancy end of pigeon raising.

The care of fancy pigeons is about the same as the care of squab producing pigeons, except of course that peculiar varieties require peculiar and special attention. Birds that are developed principally for their smallness of size require a different diet than a bird that is developed chiefly for its large size. Birds bred for their flying qualities require special attention to develop them along those lines, etc. The loft, fly pen, and nest arrangements should be about the same as for squab producing birds, where a large number are bred, but where there are but a few pairs it is not materially necessary to use the double nest system, although this is really much easier when two or three birds are kept in the same room.

MATING FANCY PIGEONS

Mating fancy pigeons is conducted in the same way as squab producing birds, except more care and attention should be taken in order to bring out certain qualities in the youngsters. In fact, the selection of mates in the fancy game is one of the chief and most particular parts of the undertaking.

It is claimed by some that all fancy, as well as other varieties of pigeons, originally came from the old rock wild pigeon. Whether they did or not, there is one thing evident and that is that all fancy pigeons of different varieties have been developed more or less by the aid of man, and if fancy pigeons of different varieties are crossed, their offspring will soon resemble common pigeons, and show more or less blue with black bars on their wings, and in a few generations will lose the special characteristics of the fancy forefathers.

DEVELOPING FANCY PIGEONS

Those who raise pigeons for fancy, as a rule, strive to create by special mating and selection, birds of special design, type and feather color. This is not done, however, by crossing one breed with another, but by developing birds in a certain direction according to what is possible to accomplish with certain breeds.

A Fantail pigeon can be developed until, when they carry their tail and head in a natural way, their tail feathers will be

so high and so far forward that the tail feathers will extend in front of their heads.

Jacobins have a heavy crest of feathers all over their neck and head. They can be developed to such an extent that their ruffled feathers will completely blind them.

Turbits that have short heads and short beaks can be so extremely developed that they cannot eat grain from off the ground on account of the freakish shape of their head and beaks, and the only way they can eat is out of a cup, where they can grab at several grains at a time and in this way secure one.

A Tumbler pigeon turns over in the air when it flies and Tumblers can be bred and developed to such an extent that they cannot fly. Such birds are called Parlor Tumblers. Every time they start to fly they turn over backwards and when they get excited they continue to turn one revolution after another.

A cross between a Fantail and a Turbit or a Fantail and a Tumbler or any other two fancy pigeons will produce a mongrel, and if a person crosses and continues to recross different breeds, they will in a short time produce a common pigeon without any special feather markings or colors, but generally blue with black bars. This likewise applies to squab producing pigeons.

Therefore little or nothing can be gained in the way of crossing breeds and progress only can be made by developing breeds already established, which were not created, as most people would imagine by crossing breeds, but by taking a single breed and developing it through special mating and selection into certain directions, with certain results.

I might add that if you have any curiosity as to what would be the offspring of different breeds of pigeons crossed together, buy a common pigeon to start with and save yourself the trouble.

CHAPTER XIX

PIGEONS THAT HAVE FREE RANGE

CARE OF COMMON PIGEONS

The care of common barnyard pigeons is about the same as the care of squab raising or fancy pigeons, except they do not require quite as much daily attention for the reason that they have a greater opportunity to provide for themselves if they fly at liberty. They, however, should be furnished suitable nesting places to protect them from the weather, their nests should be cleaned out and whitewashed at least twice a year; salt, charcoal, oyster shell or grit should be furnished, for often birds are not able to find these essentials in their daily flights, and this is especially true with salt.

The common variety of pigeons do not produce as many squabs as regular squab raisers and their squabs are not nearly as large, so they do not bring nearly as much per dozen on the market. However, with a little care and attention you can improve the results obtained from your common birds to such a degree that you will be well paid for the trouble.

If you expect to make very much profit from birds that fly out I would advise that you increase the size and squab raising ability of your birds, either by keeping a large sized variety of birds or by purchasing odd cocks of large varieties and cross them with your common birds. You can do this by mating them up with your common hens. The average squab breeder invariably has a surplus of odd cocks which can be bought at a much less price than mated birds. Homer cocks are all right to cross, except that they will fly away when liberated. It is, their instinct to try and find their original home. Then, too, Homers are not very much larger than the common pigeons and do not produce as large a cross as the Carneaux, White Kings, Mondaines or other large breeds. Runts are too large to cross with common pigeons.

HOW AND WHEN TO FEED AND WATER PIGEONS THAT FLY OUT

Birds that fly out, that is, that are not kept in fly pens, require much less feeding than birds that are kept confined. There is an opportunity for birds that fly to forage their living along the highways, in railroad yards or in public places where stock is kept or fed. The average pigeon will go miles to secure food. To attain much success, however, with birds that fly loose you should feed them a little once a day, otherwise their squabs are not apt to receive a sufficient amount of food, and this is especially true in the winter time when snow is on the ground.

A little feed given to them just before sundown is the best method because then they will have hunted all day for feed while if they are fed in the morning or during the day they will not rustle so hard and soon acquire the habit of sitting around waiting for feeding time. Then, too, if they are fed at night it has a tendency to bring youngsters or unmated birds home at night which will keep them from straying away.

Pigeons that fly out eat lots of green stuff such as grass, weeds, seeds and roots. They also pick up a lot of other articles that you would not credit a pigeon with eating. A good plan is to examine the crops of some of your squabs about sundown once or twice a week to ascertain if they are filled. If so, the food supply should be reduced a little. If not, it should be increased, but not to the extent that the birds will depend too much upon the feed that you give them.

While it is not a good idea to feed birds that are confined to a fly pen by throwing the grain on the ground, this method will do very nicely for birds that fly out, for the reason that you will not feed them more than they will pick up at one time, hence there will be no grain left on the ground to get wet and become sour.

A good plan is to provide a smooth gravel spot and then throw the grain on this place each time. If chickens, hogs, etc., have access to this feeding ground it should be fenced off so that nothing but pigeons can get to the feed intended for them.

Pigeons do not hold their own very well when eating with chickens. A simple plan when bothered by chickens or hogs is to construct a platform a few feet square, five or six feet from

the ground, high enough to prevent chickens from flying to it and then throw the pigeon feed on this platform. They will soon learn their feeding place and the time of day to expect it, also the person that does the feeding. In a short time they will become very tame and can be trained to light on your shoulder, eat out of your hand, etc.

Watering Pigeons That Fly Out

All pigeons drink lots of water, which is a very necessary part of their diet. A convenient place should be provided for birds that fly out to drink at any time of the day they might desire. This will also have a tendency to keep birds from straying away and often cause stray birds in the neighborhood to establish their permanent residence with you.

During freezing weather it is advisable to furnish a supply of water about twice a day, which should be done about the same hour each day. The birds will soon learn the hour that they can get a drink and will be on hand at that time.

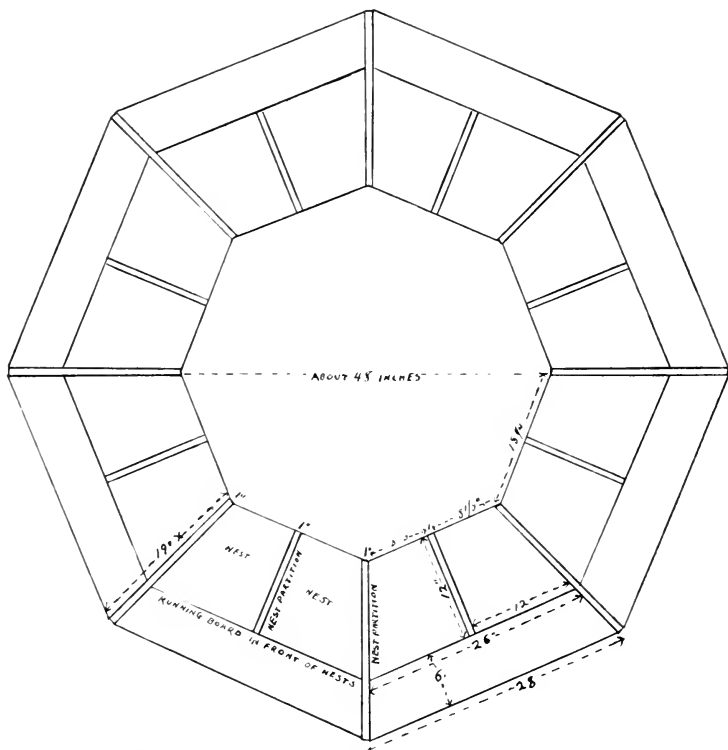
HOW TO CONSTRUCT NESTING PLACES FOR PIGEONS THAT FLY OUT

The old-fashioned idea of a box on top of a pole is most generally adopted by people who keep barnyard or common pigeons. These outdoor houses are invariably made with little protection from the heat or cold. They cannot be cleaned and are not readily accessible. About the only virtue to the martin box idea is the fact that cats, weazels and other animals cannot easily get to the birds.

The best arrangement that I know of for birds that fly out is to assign them a place in a corner of a loft or some suitable building, put in a double nest system and make same arrangements as you would for birds that are kept in fly pens. Then arrange an opening for the birds to pass in and out, high enough up and in a way that cats and other animals cannot get into the lofts.

Another good plan is to build one or more rows of double nests under the eaves of a barn or outbuilding, using the double nest described herein with removable bottoms and short running

boards in front of each double nest, except make the upright in front of each nest so as to leave a place four inches square for them to go in and out of. This can be done by nailing a board 16 inches long across the front of the two double nests,

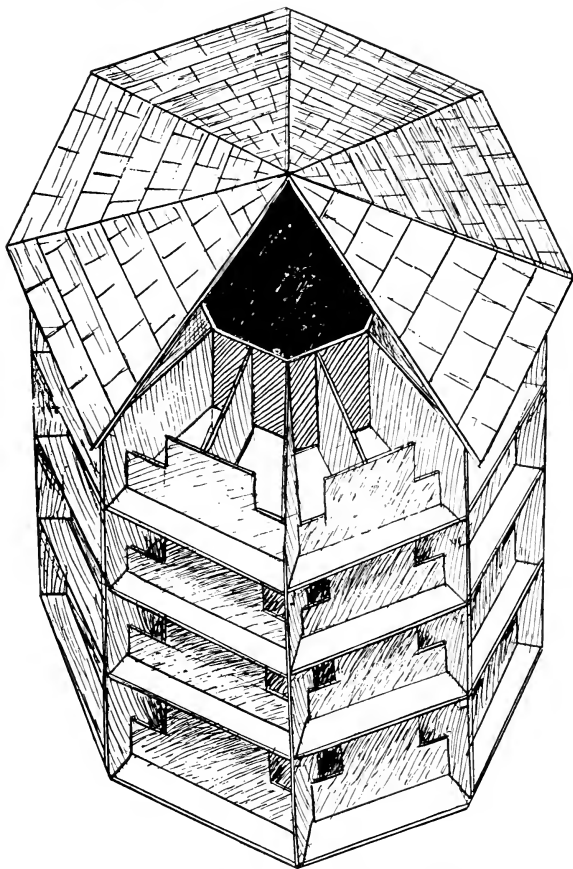


GROUND FLOOR PLAN FOR OUTDOOR PIGEON HOUSE

which will leave a four-inch space open at each end of the 16-inch board. (See drawings and article on outdoor houses for birds that fly at liberty.) If care is taken in putting up the nest and they are painted and trimmed to match the barn the arrangement can be made attractive and not an eyesore as

you might suspect. All the nest boxes should be made with removable bottoms so they can be cleaned easily.

Birds that are worth keeping at all are worth furnishing a



HOUSE CONSTRUCTION FOR BIRDS THAT FLY OUT

The above house is built in the same manner as Eggleston Double Nests are constructed with the exception of the additional front piece and with the exception that they are put up in a circuitous manner. All boards are removable and are easy to clean.

suitable place to build and the difference in squabs produced and time saved in their care will more than offset the extra trouble to supply a suitable building place for them.

The greatest objection to allowing birds to fly out is the accumulation of extra odd males, and unless you have complete control over your flock and have a perfect check on them the males will naturally increase faster than the females. A female is more delicate, is more apt to die, is not as long lived as the male, is less apt to live to mating age and a female egg is less apt to hatch than the male egg, all of which has a tendency to increase the number of males and decrease the females. A good preventative against too many cocks is to kill the largest squabs and save the smaller ones among nest mates.

When birds are flying out they can be banded and a check kept on the mated pairs with very little trouble if the double nest system is used, as they will stay on the nest much better with this arrangement and can be caught and handled while on the nest. Then when old birds are disposed of those that are not banded can be sold without disturbing working birds. As a rule, the unbanded birds will be more males than females.

With a little extra work and trouble a trap-door entrance can be made to close up every nest in a row of an outside house with one operation. With such an arrangement you can close nests at night and in a short time band the birds caught on the nests. You will invariably find the female in the nest with small young or eggs and the male in the connecting or adjoining nest. For the method of banding follow the same plan as you would in banding birds that are kept in fly pens.

The best and most practical sized room is 8 feet wide and 10 feet long, with double nests on each side of the room, and these dimensions are the most practical, even if an old house or barn of any kind is modeled over into a squab house. I think it better to partition off a space 8 feet wide and 10 feet long with wire or boards rather than to utilize a larger room. It is often necessary to catch birds for bandings and other purposes and in a large room it is very hard to catch them, and chasing them makes them wild. Birds are much wilder and harder to handle in a large room, even though you do not try to catch them than they are in a smaller place provided the nesting arrangement is properly arranged on both sides of the wall, and

there is a place for the birds to fly on top of the nests or to run under them. When you are in a room without such an arrangement, birds will become more or less panicky on account of flying against each other in so small a place.

When birds are kept in an attic or loft in a barn or in a poorly arranged space it is better to put in a system of double nests, one or more rows high than to allow the birds to build around haphazardly in corners and other places. These double nests can be bought ready made or easily built. The advantages of a double nest is so great in many ways that it more than pays to put them in even for temporary arrangements.

Pigeons will do well in almost any kind of a building or house or even in a basement if not too damp, cold and dark, provided proper nesting arrangement is made and they are given proper care. A little fresh air and sunshine is essential but this can be furnished in many other ways than by flying pens. An open window or door or a small fly pen a few feet square, built outside the door or window, will provide ample room for a few pairs.

OUTDOOR HOUSE FOR PIGEONS THAT FLY AT LIBERTY

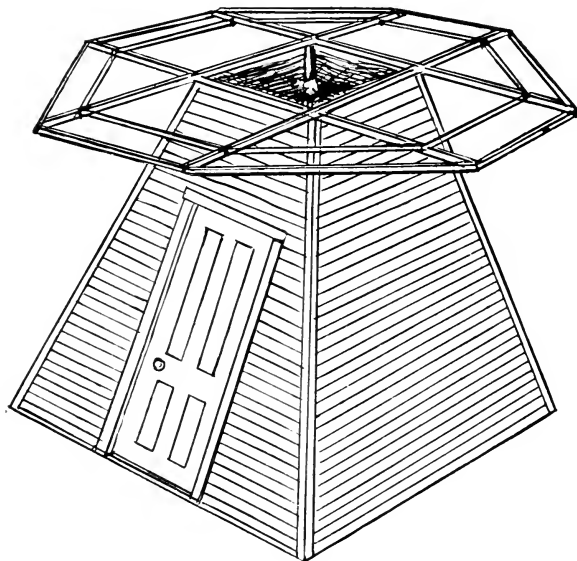
The same principle that applies to constructing nest boxes for indoor lofts also applies to the construction of nests for outdoor houses. Each pair of birds should have a double nest, a short running board connecting same and the construction should be so as to make it difficult for birds to claim and monopolize more than one double nest.

The illustration on page 263 shows an octagon-shaped house with 32 double nests or 64 nests in all. To build such a house one should proceed in the same manner as if he was going to construct nests to go inside a squab house. That is he should make the upright partitions exactly the same, making up a number of partitions 18 inches wide and 45 inches high on both sides at top and bottom, and cleats through the center 11 inches apart. An equal number of partitions 12 inches wide and cleated in the same manner should be alternated with these 18-inch partitions the same as nests in the squab house, except they can be placed closer together at the back than at the front, which will form a circular house of most any size desired.

The nest bottoms for such a house should be made the same as the nest bottom for loft use with the exception that one side

of each bottom will have to be cut off so as to allow for the angle caused by the backs of the nests being narrower than the front, as illustrated by the ground floor drawing here shown.

There there is a difference in the front of the nest bottom. Instead of having a short 4-inch piece nailed to the bottom as is shown in the regular Eggleston double nest, the front of the



BASE OF OUTDOOR PIGEON HOUSE

With the construction shown above, cats and other animals cannot get to pigeons. Nest boxes are placed on the platform. If the door is made to open inwards it should not reach to the bottom of the house.

two nests should be made as shown in the drawing, and nailed to the running board that goes in front of each double nest. The running board and front piece, as well as the bottom of the nest, rest upon the partition cleats, making them removable and convenient to clean. See illustration on page 263.

As a protection to keep the nest front and running board from falling out of place, tack them into the cleats with a couple of

small nails or, better still, drive a couple of small nails clear through the porch at either end near the back of same so that the points of the nails will rest on the cleats. The points of the nails resting on the cleats will give a slight elevation to the running boards and serve to cause the water to drain off. This will cause the front board to lean forward, which can be remedied by tipping the front board back slightly when you are nailing it on to the running board.

When you get the nest partitions up, the bottoms in and the nest fronts and running boards in place, your house is complete except the roof. Any kind of a roof will do—roofing paper, shingles or tin. Roofing paper is the cheapest, easiest to put on and looks just as well, if painted.

A house of this description can be made with 12, 16 or any number of sides and any number of nests high.

A good plan is to make the house large enough around to allow room in the center for the purpose of getting to the nests from the rear of same. This can be done by having a little door to let down at the back of each double nest.

A house built in this manner with 16 sides, 2 feet wide each, would be 9 feet 8 inches across from outside to outside. With such a house I would suggest that a window be put in the north side to furnish light for the center. The north side is not a very good place for nests in the winter time, so a window there would not take up any valuable space.

A house of the above description can be placed on the top of most any building, but the better plan is to build a framework about 5 feet high to set it on. If desired, this framework can be enclosed and used as a storeroom for feed and other purposes. By making the framework considerably smaller at the top than at the bottom and thus allowing the nest house to extend out a considerable distance from the top of the framework, cats and other animals cannot climb up the framework and get to the pigeons.

A 4-inch strip nailed around the bottom of the house extending down from the bottom will tend to prevent cats from jumping from the framework and catching on to the lower running board. This will also add to the looks of the construction.

While better results can be obtained by keeping squab breeders from flying in houses and fly pens, there is a good argument

in favor of allowing the birds to fly at liberty. The question of feed is the most important argument in favor of the liberty plan, as birds will pick up in the street, roads and along railroad tracks and like places a large percentage of their feed. This is not only true of common pigeons but of Homers and most other breeds. Some of the larger breeds, however, like Carneaux, White Kings, Runts, etc., will not fly very far away from home.

HOW TO KEEP PIGEONS THAT FLY OUT FROM LEAVING HOME

There are several precautions necessary to prevent birds that fly at liberty from leaving. Ample and comfortable nesting room for the old birds and roosting room for the young ones must be provided and such accommodations must be arranged so as to prevent much fighting and to make it easy for the young or timid birds to protect themselves from the attacks of quarrelsome cocks.

Young birds from eight to twelve weeks old are more apt to leave and not return than at any other age. When youngsters are old enough to well take care of themselves the parent birds will fight them. If there is not a convenient place for them to roost they are apt to seek a new home even though they find poorer accommodations at their new home than at their old one.

If there are other pigeons kept in the neighborhood they will first start spending the day with your neighbors' birds returning at night to roost, but finally staying away altogether unless you take steps to induce them to stay with you. Keeping plenty of water accessible for drinking and bathing purposes and feeding your birds a little each day just before night will not only help to keep birds from leaving home, but will attract stray birds in the neighborhood and induce them to establish their permanent home with you.

Unless a young cock can secure a nesting place at mating age he will leave home and seek a place where he can secure a nesting place and a mate.

Young females are more apt to leave than young males as they are easily attracted by your neighbors old males who will even visit your home and decoy your young females away.

Cocks with mates will even temporarily mate up with the young females in order to decoy them away and then forsake them after they succeed in getting them to leave you.

If you have provided your young cocks with places to build they will more than likely mate up with the young females before they are attracted by strange males. Often it is a good plan to catch the young females when they reach mating age and shut them up with odd cocks until they mate up and then turn them out.

ROOSTING PLACES FOR YOUNG PIGEONS THAT FLY OUT

The young birds that are to be kept for breeders must be provided with a place to roost by the time the old birds wean them as they will fight them away from the place where they were hatched and raised, forcing them to roost out in the weather for a while and then probably leave home. A roosting place must be so arranged that birds cannot use it for a place to build their nests or it will soon be occupied for that purpose and the young birds coming on will be without a roosting place.

The best way to provide a suitable roosting place is to nail up square blocks for perches along in a row horizontally about a foot apart against the side of a wall, then five inches above same nail a 1x6 board slanting out and down and just above that another row of blocks for perches and five inches over the blocks place another 1x6 board until you have provided enough roosts to take care of your young birds.

The object of having the perches small and a foot apart is to keep the birds from fighting and thus prevent the more aggressive ones from fighting away the younger or more weak ones. The slanting board above each row of perches will keep the birds on the upper rows from fouling those on the row of perches under them.

In a southern climate the roosting perches can be put on the outside of a building, up under the eaves of a barn is a good place, but in a cold climate it is advisable to put them up on an inside wall or to partly box them in so the birds will have protection from the cold. It is necessary, however, to place the

roosts where the birds are accustomed to staying or they will not find the roosts.

Summing up the art of keeping birds from leaving home I might say in short, provide plenty of room, a place for young birds to roost, furnish drinking and bathing water and feed them a little just before night each day.

CHAPTER XX

HOW TO SUCCEED

LEARN YOUR BUSINESS

To make the greatest success, one must strive to learn all the things about pigeons that others know and with this knowledge he must add knowledge gained from personal experience. A careful study of the business is necessary. One cannot cut corners nor expect good results without mixing brains with backbone, with a keen desire to master the science of squab culture.

At the same time one must not jump at conclusions. Too often opinions are formed too hastily and the unusual thing is taken for a basis on which a wrong idea is formed. It takes a large number of birds, a period of time and many experiences to get an average and be able to know what ordinarily will happen under certain conditions. Short tests and quick conclusions are of little or no value. The unusual is liable to happen and if that experience is taken as a criterion, the exact opposite would probably be nearer right than the conclusion reached. It is better to take the other fellow's word for it and abide by the advice of those who have had long experience than to depend too much on short experiences of your own.

Like most other things worth while, there is considerable to learn about the squab business and all its branches.

The habits of pigeons and the raising and marketing of squabs is in a way foreign to the things that most people are accustomed to. Those entering the business and those engaged in it, must not conclude that their knowledge regarding other affairs will to a large degree equip them with all that is necessary to know about pigeons and squab raising.

As an example, a person might be an expert on chickens and chicken raising but unless he had made a thorough study of pigeons and had some practical experience, his chicken knowledge would do him more harm than good if he tried to apply it to squab raising.

START RIGHT

Do not do things temporarily with an idea that eventually you will do them better. It is all right if you know little or nothing about pigeons to get a pair or two of most any breed and familiarize yourself with their characteristics and habits by watching and caring for them for a month or so or during the time you are preparing your squab house. But it is the height of folly to start in the squab business with inferior birds, a makeshift squab house and just any old nest arrangement and other equipment to match.

One cannot build a substantial building on a poor foundation nor can a squab business be successfully built up without well laid plans, good birds and good conditions from the start.

CLOSE ATTENTION

Ignorance, neglect and carelessness are greatly responsible for most failures in the squab business. You will never know too much about the business. The chances are you will pay too little attention rather than too much attention to your birds and the business in general. Most people are careless about taking care of one thing or another. You can safely bet that you will be no exception to this rule.

Close attention does not mean that one should be constantly bothering his birds nor giving them unnecessary attention and thereby wasting time and labor without material benefit.

Birds must be watered and fed regularly. Unmated birds must be kept out of the breeding pens. Sick birds must be removed and doctored or killed. Underfed squabs, broken eggs, foul nests, and dozens of other things must be promptly discovered and prevented or remedied.

A hurried, quick, thorough daily inspection is necessary and one should know what to look for, how to remedy conditions quickly and effectively.

DETAILS ARE IMPORTANT

Taking care of the little things and paying strict attention to the details are very important. My experience has been that most squab raisers take too much for granted and do not value

the importance of taking care of all details in a proper and systematic way. They fail to study the business and do not know the many short cuts and methods that make the work easy and insure success.

Some seem to think that any old way or any old plan for today will do and as a result, their work is made hard, their results are not good and they soon tire of the business and either fail or drag along with little prospect for future improvement.

MAKE WORK EASY

When constructing squab houses, fly-pens, nest boxes, feed and bath troughs, etc., bear in mind that a little extra time and pains taken then will save much time and labor in the future. Study and follow the squab house and equipment construction described herein. You cannot fully appreciate the difference in time and labor saved and the general results secured unless you could personally conduct a modern up-to-date plant and a makeshift one at the same time. This applies to a small, one unit squab house as well as a large many unit plant.

By having nests with removable bottoms they are easy to clean. Feed troughs in front aisle where they are easily accessible; bath and drinking troughs properly made so that birds can be watered and given baths easily and quickly; nest material racks and grit hoppers made along practical lines; mating coops, fly pens and the general house construction conveniently arranged, your inspection work in caring for young birds can be done quickly and easily and it will become a pleasure instead of something to be endured.

LOVE YOUR WORK

We all like to do the things that we know how to do and can do well. We cannot do the things well that we do not like to do. So our efforts, accomplishments and the pleasure we get out of them, seem to go in a circle. We like to play better than we like to work and we like best to play at something we can play well. If we can make play out of work and can learn to do it well, it becomes a great pleasure. On the other hand, if

we make our work a drudgery we will not learn to do it well and will never enjoy doing it.

Learn to love your work if you want to make it easy and to do this you must learn much about it and to do it well work should be enjoyed rather than endured. All these things can be cultivated and all go a long way towards success.

To be successful we must start right, study the business, not jump at conclusions, pay strict attention to details, love our work, have a fixed purpose and a full determination to win.

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INDEX

	Page		Page
Abandoned Eggs	159	Color Breeding	114, 116
Age to Take From Nest	161	Colds	122, 127
Aisle Feed Box	241	Collapsible Mating Coop.....	232
Aisle-in-Front Plan	215	Construction of Houses..	191, 200
Anyone Can Raise Squabs	16	Corn	79, 89
Appearance of Squabs	179	Cost of Feed	91
Archangels	256	Crosses	71
		Cross Breeds	71
Bad Boys	111		
Banding	102	Demand for Squabs	20
Barley	88	Details Are Important.....	272
Barren Females	154	Developing Fancy Pigeons....	257
Bath Troughs	98, 234	Diarrhoea	128, 133
Bathing	98, 236	Diseases	121, 127, 132
Beautiful Squab Houses	34	Disinfectants	107
Birds at Liberty	259	Distinguishing Sex	139
Bookkeeping	249	Do's and Dont's	252
Bowels, Loose	128, 133	Double Deck Feed Boxes	242
Boxes, Nest	224	Double Nest System	224
Bread as Food	89	Dressed Squabs	178, 182
Buckwheat	79, 88	Drinking Troughs	97, 237
		Drinking Water	96, 227
Canker	128, 133	Dying of Squabs	155, 158
Care of Common Pigeons	259		
Care of Fly Pens	102	Educating Customers	188
Care of Squabs	154, 161	Egg Troubles	129, 154, 166
Care of Squab Plant	101	Eggs, Abandoned	159
Care of Youngsters	154, 162	Eggs, Incubation of	156
Carneaux, Black	45	Eggs, Infertile	166
Carneaux, Origin of.....	35	Enemies of Squab Plant	107
Carneaux, Proper Weight	37	English Pouters	255
Carneaux, Slate Colored	39	Equal Number of Males and	
Carneaux, Solid Color	50	Females	148
Carneaux, Utility	47	Equipment for Plant.....	224
Carneaux, Yellow	40	Exhibition Birds	167, 172
Carneaux, White	41	Exhibiting Birds	163
Changing Eggs and Squabs ..	155		
Characteristics of Pigeons, 21,	255	Failure, Cause of	250
Charcoal	93	Fancy Pigeons	255
Close Attention	272	Fantails	257

	Page		Page
Feather Coloring	114	How to Start	19, 25
Feather Rot	129	How to Succeed	271
Feed Analysis	85	Hungarians	60
Feed, Composition of.....	80	Inbreeding	119
Feed Boxes	238	Incubation of Eggs	156
Feed, for Pigeons	77, 86	Indian Corn	86
Feed, High Cost of	91	Improving Quality	149
Feed Hoppers	242	Infertile Eggs	166
Feed Necessary	77	Inside of a Squab	145
Feeding Common Pigeons	260	Jacobins	158
Feeding, How and When.....	74	Kafir Corn	79, 86
Feeding Squabs	130	Keeping Birds from Leaving	268
Fly Pens	218	Killing Squabs	180
Flying Homers	53, 256	Kings	68
Fried Squabs	186	Large Plants	210
Getting Started Right	19, 25	Learn Your Business	271
Going Light	123	Lentils	89
Good Prices	188	Lice	107
Gravel	92	Light and Air	231
Grit	92	Line Breeding	116
Grit Hoppers	244	Location of Plant	212
Growth of Squabs	141	Loft Feed Box	243
Habits and Characteristics	21, 255	Loft Necessities	224
Hand Feeding	130	Long Distance Shipping	184
Hawks	111	Loose Bowels	128, 133
Hatching	141, 155, 156	Love Your Work	273
Health Grit	92	Lump on Wings	123
Hemp Seed	79, 89	Magpies	256
Home Use of Squabs	29	Make Work Easy.....	273
Homers	54	Maltese, Exhibition	62
Houses for Pigeons at Liberty	265	Maltese, Origin of.....	61
Housing	191	Management	247
How to Band	102	Many Unit House.....	205
How to Build	191, 200, 215	Marketing	179
How to Build Fly Pen	218	Mating	135
How to Build Nests	227	Mating Coops	232
How to Construct Nesting Places	261	Mating Fancy Pigeons.....	257
How to Cook Squabs	186	Maximum Squab Yield.....	248
How to Exhibit	168	Mice	110
How to Improve	149	Millet	79, 89
How to Kill	180	Mites	107
How to Market	179	Modern Squab House.....	200
How to Mate	135	Mondaines, Crested	67
How to Pick	180	Mondaines, Swiss	64
How to Select Breeders	150		
How to Tell Sex	139		

	Page		Page
Moulting	113	Runts, Grizzle	57
Mud Balls	127	Runts, History	55
Nest Boxes	227	Runts, Origin	55
Nest Material Rack	245	Runts, Red	59
Nest Partitions	229	Runts, Silver	58
Nesting Material	106	Runts, White	56
Nesting Places	261	Runts, Yellow	59
Oats	88	Salt	94
Odd Cocks	149	Sand	92
Old Pigeons	164	Satinettes	256
Old Pigeon Pie	188	Scalloped Squabs	187
One Unit House	105	Selection of Breeders	135
Ornamental Squab House.....	34	Selection of Youngsters	150
Outdoor Houses	265	Serving Squabs	186
Overhead Chute	217	Shipping Live Pigeons	185
Owls	111	Shipping Squabs	182
Oyster Shells	94	Show Birds	167, 172
Paraffin, Use of	181	Sick Pigeons	130
Parlor Tumblers	258	Small Plants	210
Pattern Rack	229	Small Squabs	182
Peas	79, 87	Soft Shelled Eggs.....	129, 154
Picking Squabs	180	Sore Eyes	124
Pigeon Diseases	121	Sore Feet	126
Pigeon Feeds	77	Sour Craw	128, 134
Pigeon Habits	21, 255	Sour Crop	128, 134
Pigeons for Pleasure	33	Sparrows	111
Pigeons for Profit	14	Squab Breeding Crosses.....	72
Pigeons at Liberty.....	259	Squab Industry	13
Pigeon Lice	107	Squab Pie	188
Pigeon Milk	89	Squab Souffle	187
Pigeons with Chickens.....	30	Squabs Raised Anywhere.....	18
Polish Lynx	67	Squabs Dying	155, 158
Pouters	256	Squabs for Home Use	29
Preparing Squabs for Market	179	Squabs for Profit	14
Profit in Squabs	14	Squabs, Size of.....	141
Racing Homers	53, 256	Squabs, Small	159, 160
Rape	89	Start Right	272
Rats	110	Sulphate of Iron	95
Remedies.....	121, 127, 132	Sunflower Seed	79, 89
Rice	88	Swiss Mondaines	64
Rock Pigeons	156	Thieves	111
Roosting Places	269	Telling Males from Females,	139
Roup and Colds	122	Tonics	129, 133
Runts, Black	59	Transferring Squabs	161
Runts, Blue	57	Tumblers	258
		Turbits	258

	Page		Page
Utility Breeds	53	Wheat	79, 87
Varieties of Pigeons	255	When to Exhibit	168
Ventilated Doors	223	When to Start	19
Ventilation	231	Where to Exhibit	168
Vermin	107, 129	White Kings	68
Vetches	89	Why Raise Squabs	13
Watering	96, 237	Wire Doors	222
Watering Common Pigeons...	260	Wire Partitions	213
Watering Pigeons	261	Youngsters for Stock	150

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